March 17, 1962
Vol. 162 — No. 11

Telephony

THE JOURNAL OF THE TELEPHONE INDUSTRY

Mrs. Jean Roche, Milwaukee canvasser, has, three years in a row, been chosen by Wisconsin Telephone Co. as "Sales Woman of the Year". Now, the company, for first time in its history, has awarded a woman—Mrs. Roche—title of "Salesman of the Year". Milt Kassner (right) general marketing manager, introduces her. See story of her record, p. 53.

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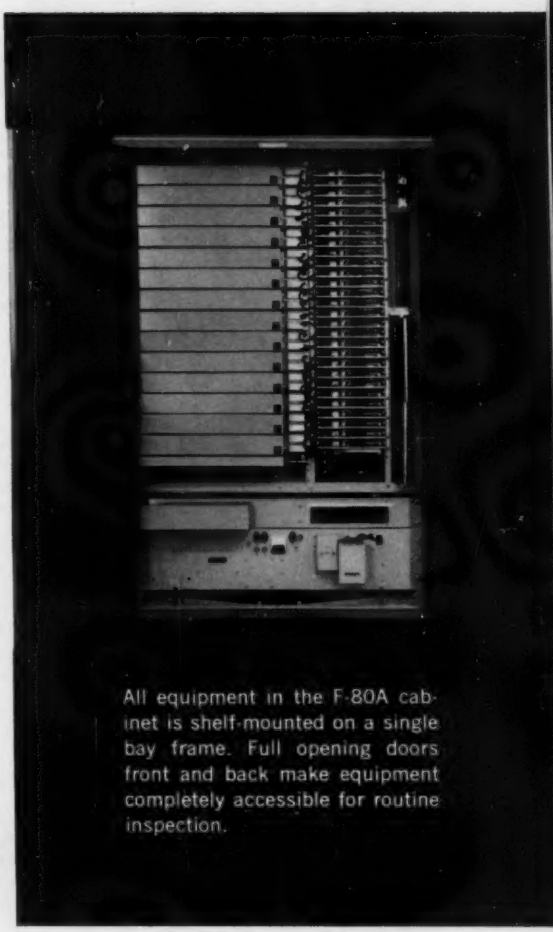

All equipment in the F-80A cabinet is shelf-mounted on a single bay frame. Full opening doors front and back make equipment completely accessible for routine inspection.

GENERAL DYNAMICS | TELECOMMUNICATION

FLASHES AND PLUGS

Wrong End. An experienced writer realized that people being interviewed often clammed up at the sight of a reporter taking notes.

Because he wanted to get the true flavor of a subject's remarks, he decided to make use of a technique employed by a noted columnist. This consisted of scribbling little notes inside his coat pocket.

The experimenter decided to give the columnist's idea a trial. He acquired some stub pencils and little scratch pads and went out to see what information he could gather.

In the lobby of a large hotel he met a celebrity and shook hands with him. The writer then ducked his right hand into his pocket, got hold of his pencil stub and tried to get a conversation started.

He worked hard at getting a flow of sparkling repartee and at recording it all.

When the interview was over, he took his previous notes out of his pocket and discovered that they consisted of erasures, erasures of nothing. It seems he had the stub pencil upside down and was erasing on blank paper.

•

For Whom The Bell Tolls. Well-known for their devotion to duty, telephone people also try to "give the customer what he wants".

Sometimes this involves great resourcefulness, as in the case of an Illinois Bell Telephone Co. installer's solution to a problem.

It seems that several interns in a Chicago hospital shared a bedroom. All received calls at night. The problem was that when the telephone rang for one doctor to report on duty, it automatically awakened the others.

The ingenious telephone man came up with a solution. He rigged up special under-the-pillow ringers so that any one of the medics could be summoned without disturbing the slumbers of his roommates.

•

Tit for Tat. Employes at the General Telephone Co. of Illinois' Benton exchange are pretty sure of the good will of one subscriber, according to The Illinois General "News".

Once each year, Mrs. August Cavalli of Benton invites all the local telephone folk to her home and serves them a dinner consisting of various Italian dishes.

Mrs. Cavalli says, "Telephone people have always been very nice to me, and so I feel I should do something for them."

•

One Up. An Irishman and an American Indian got into an argument. The Irishman listed the names of all the great Irish-Americans who contributed to the development of this country, then demanded to know what the Indians had contributed to the nation.

"Well," replied the Indian after a little thought, "you never see any kids playing 'cowboys and Irishmen.' "

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Telephony

THE JOURNAL OF THE TELEPHONE INDUSTRY

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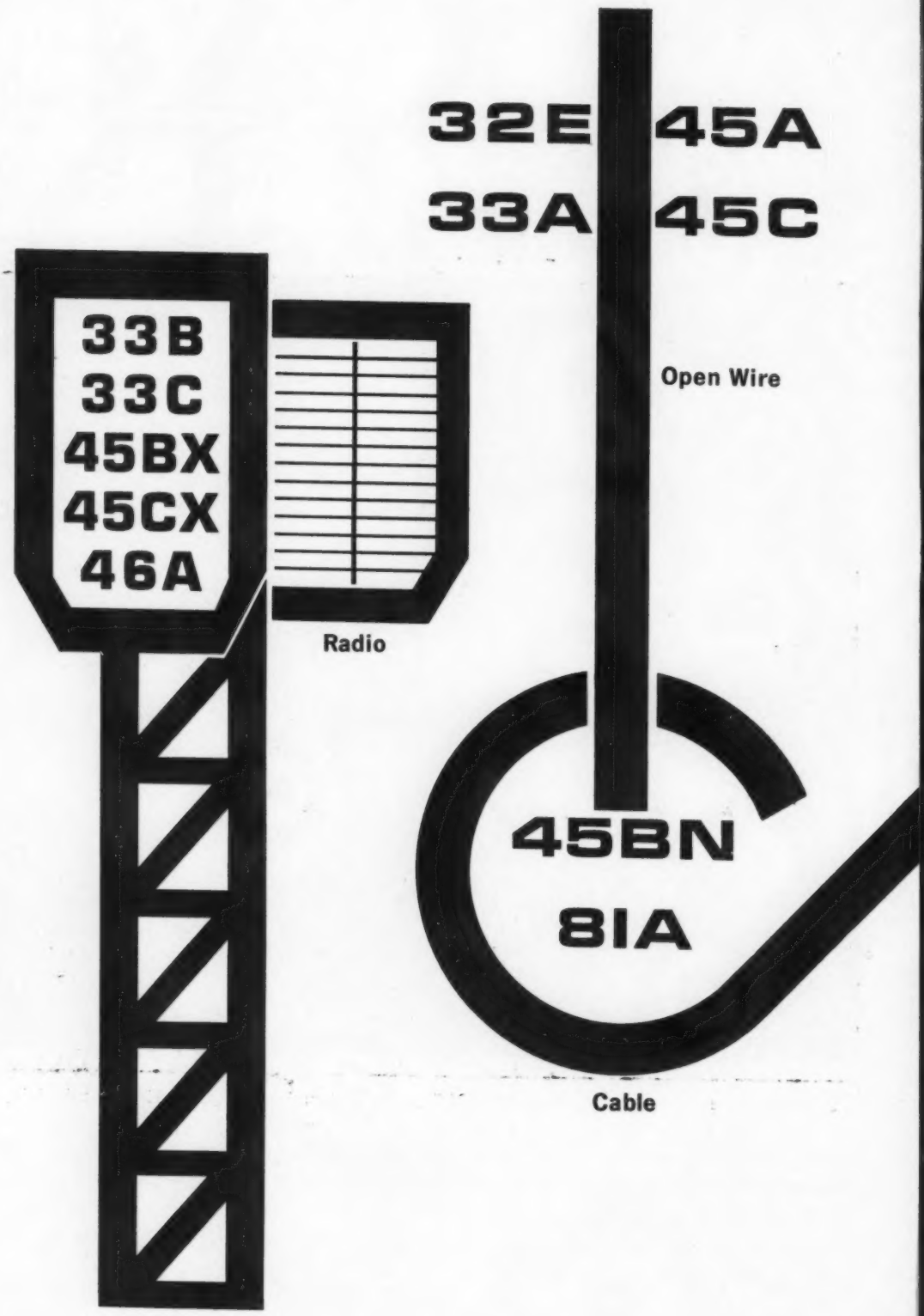
32E
33A
45A
45C
33B
33C
45BX
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42

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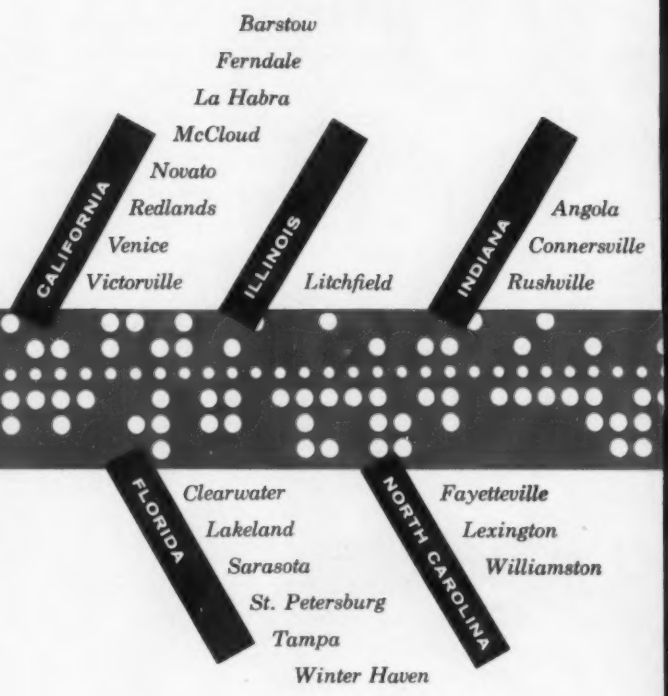
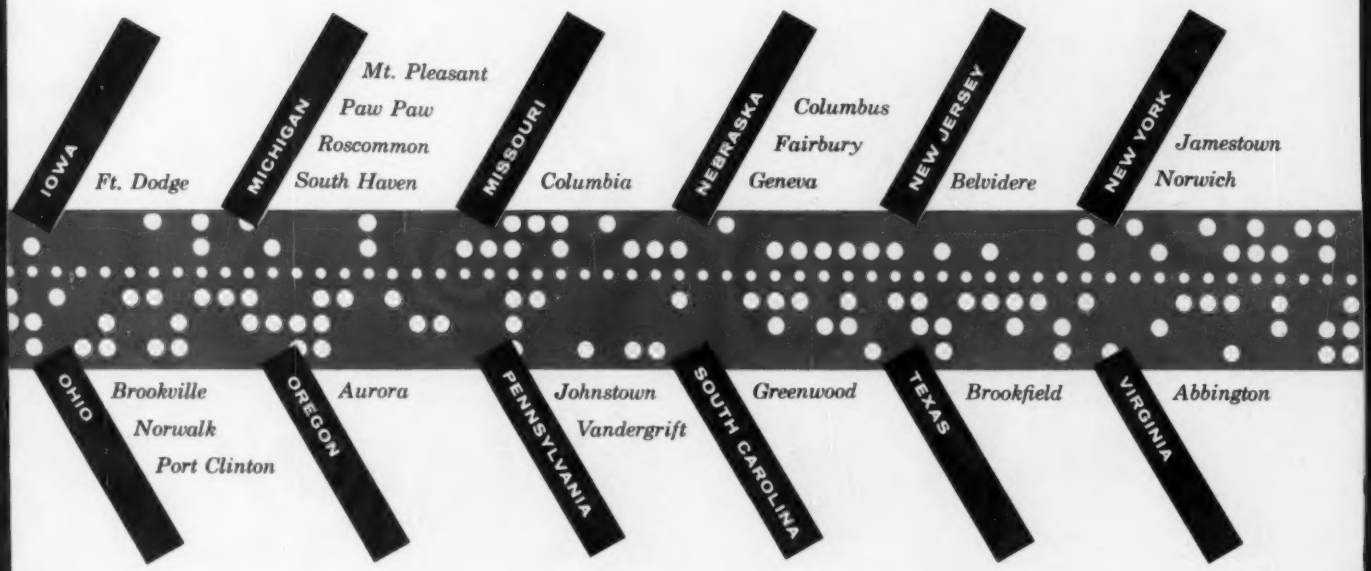
SATT

INSTALLATIONS



42 more independent telephone exchanges are scheduled to install Strowger Automatic Toll Ticketing! These exchanges represent 17 states from across the nation. Some of the installations are in small exchanges; others in large, multi-office networks. All of them investigated competitive makes of toll ticketing equipment. They discovered that SATT is the ideal method of handling toll calls without an operator.



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Are you considering automatic toll ticketing? If so, be sure to get the full facts on all makes of equipment. We think you'll discover that SATT is your best investment for the future. To start your investigation, ask your AE representative to explain how a SATT system processes toll calls. He can give you the complete story, including details on our new PPCS equipment. To contact your AE representative, write Automatic Electric Sales Corporation, Northlake, Illinois. Or telephone 345-7111.

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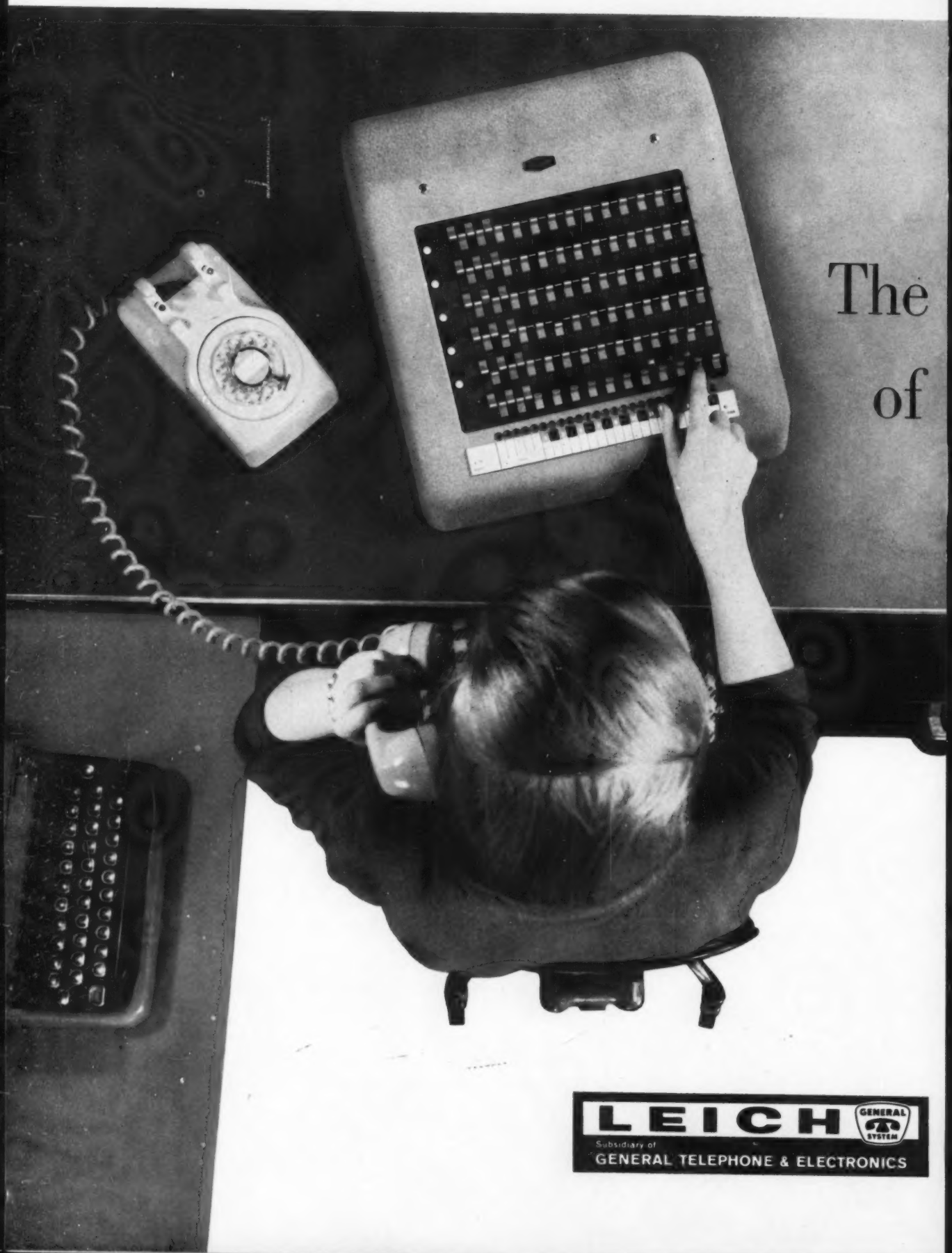
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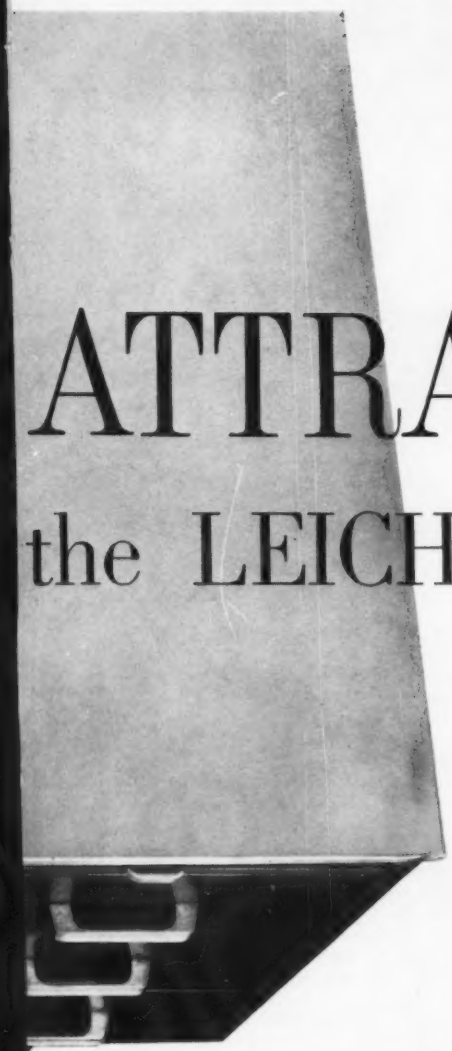

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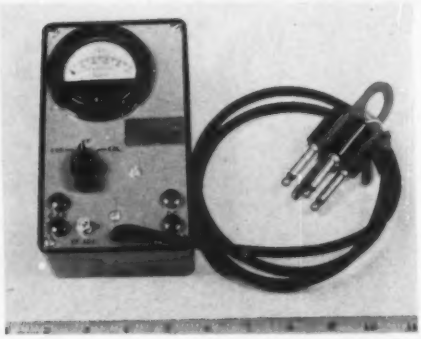
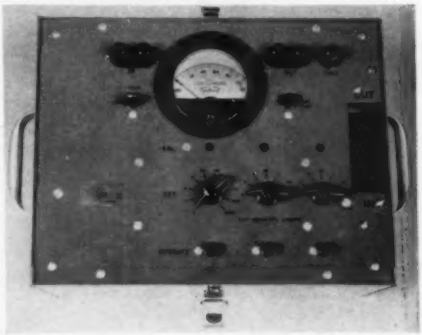


Repeater Test Set



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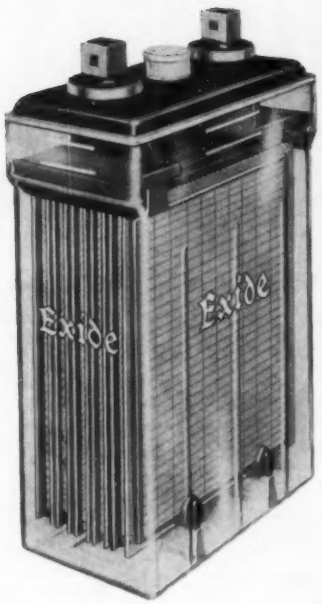

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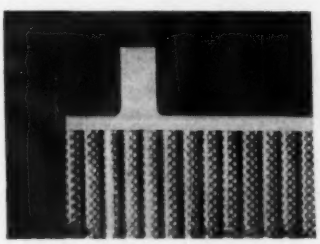

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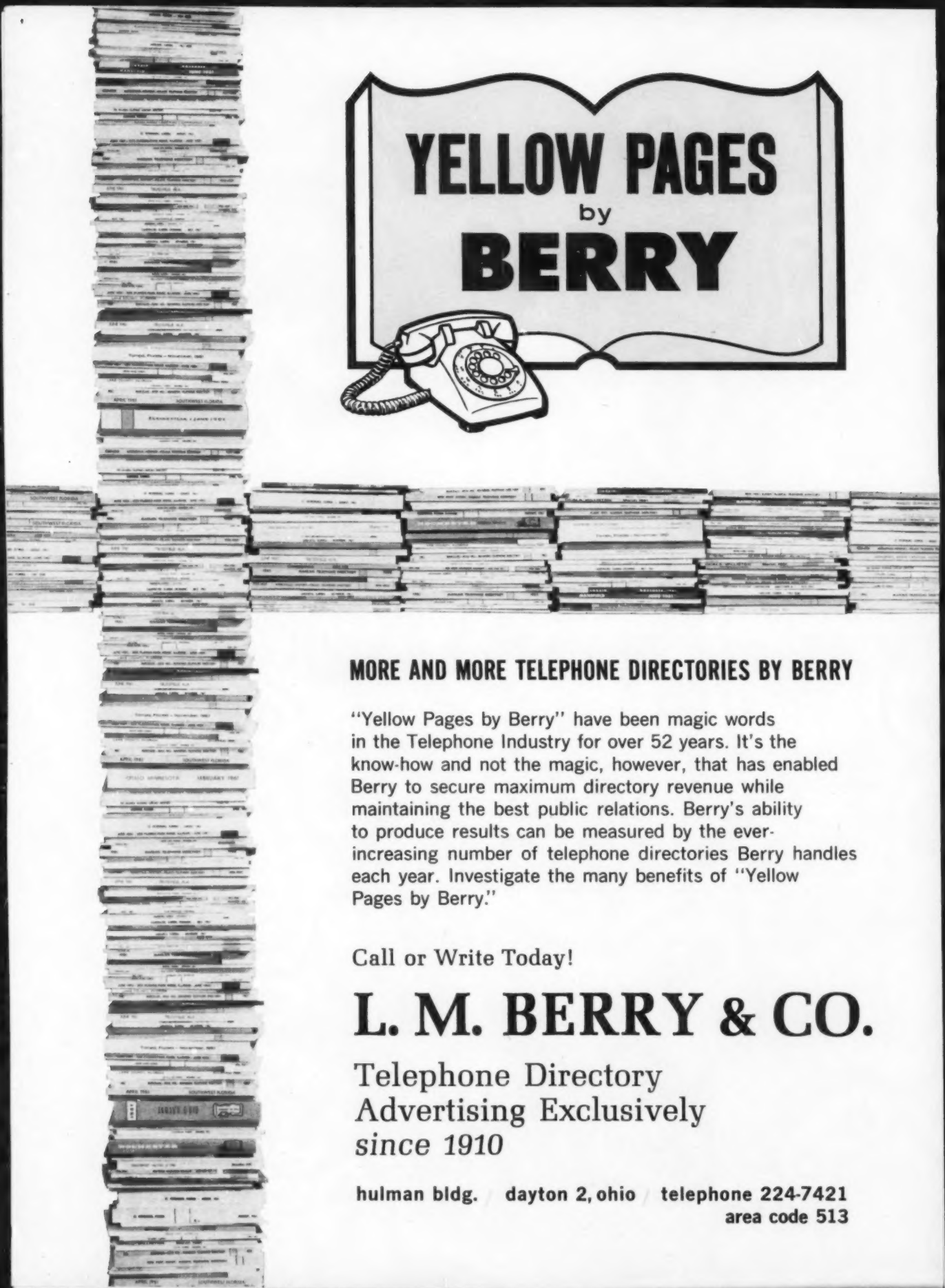

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IN THE NATION'S CAPITAL

BY LAWRENCE J. HOGAN, WASHINGTON EDITOR
and President, Larry Hogan Associates,
Public Relations Firm.

AT&T and ITT executives voice objections to Kennedy administration's plan for broad-based ownership of communications satellite corporation before Senate committee....FCC Chairman Minow in favor of limited ownership provided for in Kerr Bill....AT&T picked to help NASA in moon space project....House approves bill for federal aid to E-TV development.

JAMES E. DINGMAN, American Telephone & Telegraph Co. executive vice president, testified before the Senate Committee on Aeronautical and Space Sciences and said the organization which operates the communications satellite system "must be service-minded, must sincerely believe in the objectives of the whole program, and must be willing to take the risks inherent in the speedy establishment of this new and untried communications facility."

Dingman stressed that the U. S. satellite organization must have technical competence of the highest order, a thorough understanding of the communications business, and an ability to deal with its foreign counterparts.

"There can be no conflicts in objectives within this organization, no overabundance of caution, no penny pinching spirit. This organization must also be free, under appropriate regulation, to exercise initiative and leadership and to move forward promptly."

Dingman said that, in line with these basic requirements, AT&T felt that ownership of stock in the satellite corporation should be limited to communications carriers approved by the FCC, that ground stations should be owned and operated by the carriers, and that, while adequate government control should be present, it should not result in a duplication of supervision and regulation which might smother initiative and leadership.

He described satellites as microwave towers in the sky which do not constitute a communications system in themselves, but are a link which must be properly integrated into the present communications network of cable and radio operated by the communications companies.

Dingman reasoned that since the U. S. satellite corporation would not own the ground stations in *other* countries there was neither need or justification for the corporation owning the ground stations in *this* country.

In urging ownership by the communications companies, the AT&T vice president said there was no question as to the competence of the U. S. carriers, and pointed out that their research and development work has brought communications technology to the point which has made satellite communications feasible. "They have pioneered in the field of satellite communications," he said. "What reason is there now to separate the alternate facility and entrust it to other hands?"

He charged that the stock arrangement outlined in the Kerr-Magnuson bill creates an uncertainty which could place the future of the program beyond the decision of Congress. Dingman said that having two types of investor—carriers and non-carriers—would lead to a conflict of interest. The carriers will "wish to push forward with the establishment of an operable satellite communications system at the earliest feasible time and to take economic risks inherent in such an undertaking." Dingman said the non-carrier investors on the other hand could be expected to seek maximum security and maximum return on their investment. He suggested that it is possible "that the accomplishment of the national purpose here involved would be placed at the mercy of the stock market and the answer which it gives to the simple question, 'Is this stock a good buy?'"

Dingman cautioned against overlapping regulation and a departure from present methods of control. He observed that many of the powers given to the President in the administration's bill appear to involve departure from the Communications Act of 1934, which centralized authority over both interstate and foreign communication in the FCC. He said duplication of government control is present in the administration's bill which proposes giving the FCC, National Aeronautics and Space Administration (NASA) and the State Department additional supervisory powers.

Before President Kennedy sent his proposal to Congress, there appeared to be strong support among the lawmakers for broadly based ownership of the satellite corporation and little support for confining the ownership to international carriers. Last August, 35 liberal Democratic senators and representatives asked the President to back the broad ownership idea.

The current Senate Space Committee hearings, however, have produced some influential support for the limited ownership idea. Some of the Senate committee members, including Chairman Kerr (D., Okla.), are opposed to a

Dissatisfaction Eliminated

One of Will Rogers' famous quips, as current now as when he said it a generation ago:

"Every government in the world today has more discontented people than usual, but I think there is less complaining by the subjects in Russia than anywhere else. That is, they don't complain as long."

broad-based ownership that would include the public.

The FCC came out in favor of the limited ownership provided in the Kerr Bill when Chairman Minow testified before the Space Committee.

Dr. Henri G. Busignies, vice president and general technical director of International Telephone & Telegraph Corp., testified against a broadly owned satellite corporation and called for a network in which the 10 international communication carriers would own the stock with the government participating, either through stock ownership or subsidies.

Dr. Busignies said the broad-based public stock issue, proposed by the President's bill, isn't sound because if the satellite system has to earn a profit from the time it becomes operational, its costs must be reflected in rates to the user much higher than those currently in effect for other means of communication. "Yet the rates to the public for service through the satellite system cannot be and should not be at a much higher level than for existing facilities if the satellite systems are to attract use," the IT&T spokesman testified.

"On the other hand," he said, "if the satellite system is owned by the international common carriers, the cost of such operation, combined with the costs of operating existing facilities, can be averaged and we can so avoid the necessity for highly increased rates during the early years of the satellite program."

Dr. Busignies was opposed to provisions in both the administration bill and the Kerr bill which provide for ownership for ground transmitting and receiving stations by the satellite corporation.

Dr. Busignies said, "Control of transmitting and receiving facilities is a fundamental part of the responsibility of the carriers providing communications services. They should not be deprived of such control if they are to remain responsible for the rendering of such services."

AT&T Picked for Moon Project

Almost simultaneous with Mr. Dingman's appearance before the Senate space committee, NASA announced that AT&T had been selected to provide systems engineering support for the United States' project to land a man on the moon. The work would encompass a broad spectrum of problems which are involved in the complicated program.

AT&T, which is expected to assign 200 technical and scientific employes to the contract work, will back up the work of NASA personnel in the Office

L. J. HOGAN

of Manned Space Flight. NASA Administrator Webb said his agency could perform much of the work itself, but the arrangement with AT&T would enable the government to use the "most skilled specialists immediately available to help meet our urgent time schedule."

Cost of the long-term contract was estimated at 5 million dollars.

Pay-TV Gets Go-Ahead

The United States Court of Appeals turned down the effort on the part of Hartford, Conn., theater owners to block that city's pay-TV experiment. Unless further legal snarls cause another postponement, the tryout should go into effect in June.

Opponents of the plan, led by the Connecticut Committee Against Pay-TV, contended that the Federal Communications Commission had no authority to approve pay-TV. The court ruled otherwise. Judge Warren E. Burger said that FCC should be able to experiment with new systems unless the future of television is to be confined to its present state. The decision pointed out that the Federal Communications Act "makes clear that Congress placed an affirmative duty on the commission to experiment with and develop the most desirable deployment and utilization of the nation's communications facilities."

Burger added, "The commission has declared its determination to oversee carefully the form which programming takes under the subscription system. Surely its power to see that this area of the public domain is used in the public interest is not less for paid television than for the existing system of so-called free television."

Zenith Radio Corp., holder of the patents on the equipment which would be used, hopes to have the experiment in operation June 1.

Meanwhile Denver is competing with Hartford to be the first city with pay television on the air. Bill Daniels & Associates, a community television antenna company, paid 2 million dollars to purchase Denver's KTVR-TV from J. Elroy McCaw. McCaw had a contract with Teleglobe to use the system on a three-year test. Daniels said he would honor the contract.

Under the Teleglobe system, the audio signal is transmitted on a separate telephone channel to accompany the video signal on the regular screen.

The FCC has not yet approved the Denver experiment.

BDSA Reports on Production

During the fourth quarter of 1961 manufacturers' production of communication equipment included 2.4 million telephone sets, 1.0 million lines of dial central office equipment and 287 thousand lines of dial PBX equipment, according to the U. S. Department of Commerce. The total value of all communication equipment shipped during the fourth quarter of 1961 totaled 561 million dollars. In addition, communication equipment manufacturers shipped, during the same period, 124 million dollars of supply items purchased for resale.

The Commerce Department welcomes inquiries about its report. Inquiries concerning the content of this report may be addressed to either the Communications Industries Division, Business and Defense Services Administration, or the Industry Division, Bureau of the Census. Requests for copies should be addressed to the Bureau of the Census, Washington 25, D. C.

House OK's Educational TV Bill

Telephone companies which must play a major role in any educational television operation are watching with interest legislation pending in Congress which would offer federal aid to spur development of Educational TV (E-TV).

On Mar. 7, the House of Representatives passed a $25,520,000 program of federal matching grants to public educational institutions. The Senate had previously passed a similar bill which

Greatest Resource

"The greatness of a nation lies not in the number of its battleships, but in the extent it has developed the latent intelligence of its working people, particularly its youth."—E. G. EDWARDS.

did not require matching funds. Now House-Senate conferees will iron out the differences and come up with a compromise bill. The House rejected a provision making grants available to private non-profit agencies.

Under the House-passed bill, matching grants of $10,000 would be available to each of the 50 states, Puerto Rico and the District of Columbia for surveys of educational broadcasting needs. Construction grants would be limited to 1 million dollars for each state which would not apply to the cost of buildings.

Congressman Oren Harris (D., Ark.), chairman of the House Commerce Committee, called the bill one of the most important to come before Congress this session. He said, "At a time when education in the United States faces serious challenges, when physical facilities and teachers must be found to teach increasing numbers of students, when subjects must be taught in our schools which only relatively few teachers are equipped and prepared to teach adequately, it seems unthinkable that this new medium should not be utilized to the full extent of its usefulness as a teaching tool."

Another "Needles in Space" Try

This Spring, the United States will make another attempt to string a stream of metal filaments in space to experiment with a new communications system.

Last October, the first Project West Ford launching failed. The canister holding the dipoles went into orbit all right because it has been spotted on radar screens, but the needles themselves were never observed. When Astronaut John Glenn reported seeing mysterious luminous particles during his triple orbit of the earth, there was some speculation that these might have been the misplaced Project West Ford dipoles. Scientists, however, don't believe that the metal particles were ever ejected from their canister.

The purpose of the experiment is to determine if radio signals can be bounced off the orbiting filaments and relayed back to earth as part of a communications system.

GOP Speaks on Expropriation

Seizure of the American telephone system in the Brazilian State of Rio Grande do Sul has caused Republican leaders in Congress to insist that Latin American countries taking part in the Alliance for Progress be required to promise that they will not seize American property. (See "In The Nation's Capital," Mar. 3 issue.)

House Republican Leader Charles A. Halleck of Indiana admitted that countries have a right to expropriate property provided they pay proper compensation. (Rio Grande do Sul paid only $400,000 for an American investment in the telephone facilities of 7 million dollars.)

Halleck said, "Certainly our American taxpayers and investors should be assured that nations receiving foreign assistance from the United States will not be allowed to get away with capricious seizures of American property and on their own terms."

"Brazil," he noted, "in the last four months has received 90 million dollars in United States loans and its President Goulart is coming to the United States on Apr. 3 to consult with President Kennedy about 600 million dollars in assistance."

The governor of Rio Grande do Sul is a brother-in-law of President Goulart.

Staffers to Get Raises

FCC approved pay raises for seven key employes. General Counsel Max Paglin will receive a Super Grade 18 ($18,500). Civil Service rejected similar grades for FCC's chief engineer and chief of the Broadcast Bureau. Executive officer Robert Cox's promotion to Grade 17 was held up by Chairman Minow pending the outcome of executive director position proposed for FCC by Booz, Allen & Hamilton survey.

Receiving promotions to Grade 16 ($15,255) were Daniel Ohlbaum, assistant general counsel; Gerard Cahill, assistant general counsel; Joe Nelson, chief of renewals and transfers; Jim Juntilla, assistant to Broadcast Bureau chief; William Watkins, frequency allocations; and Marion Woodward, international division.

FCC incidentally was not very happy with the preliminary reorganization report submitted by Booz, Allen & Hamilton. The commission claimed that the report was superficial and made no real effort to seek out and solve problems, that it was full of factual errors, misstatements, inconsistencies and oversimplifications. The research firm will incorporate corrections and submit a final report to FCC which then must act upon the streamlining suggestions.

A Fair Shake

Here's welcome news. Someone is doing something about the job of encouraging employment opportunities for the fast-growing labor force of mature workers—the men and women 45 years of age or older.

That "someone" is the National Association of Manufacturers. That's the organization made up of more than 18,000 member companies—most of them small. And here's the official NAM policy on employment practices for mature workers:

"Employers are urged to observe voluntary hiring practices which give consideration to skills and abilities rather than to any arbitrary age factors."

In a study just published, entitled "The Productive Years—Ages 45-65", the NAM's industrial relations division explodes a few myths surrounding the desirability of hiring mature workers.

The myths—and the actual facts—are eyeopeners:

Myth No. 1: "I can't take a chance on an older worker—he's liable to be absent too often."

Fact: Such fears are groundless. As a group, older workers are absent fewer times each year than younger counterparts.

Myth No. 2: "I'm afraid for the safety of the older worker. He's more accident-prone."

Fact: All available research shows the older worker to be generally more safety-conscious, less accident-prone.

Myth No. 3: "I have to keep production at a high level. An older worker might not keep up with the rest."

Fact: If there is any difference in the rate of production of an older worker, it does not show until after 55. Even then it is an individual factor.

Myth No. 4: "I need versatility. Too many older workers are set in their ways."

Fact: Some older worker are inclined to be inflexible; so are some younger workers. The important consideration is the individual's outlook—his "functional age."

Summing it up—since when did a few gray hairs cut down creativity—and production? Let us all act our age when it comes to giving mature job applicants a fair shake.—Industrial Press Service, National Association of Manufacturers.

Radio Frequency Coordination

By L. R. Schultz*

IN THE DIVERSE complex of business, the telephone company is one category of this complex that can look back on its record of advancement and take almost singular note of accomplishment by virtue of the coordinated teamwork of more than 3,300 separate companies. In the face of the crescendo of technological complications and changes that are facing the telephone industry, it is absolutely necessary and proper that this coordinated teamwork between companies be expanded accordingly.

Historically, our industry is basically land line in design and concept. It might be well that we digress for a moment and review the words of Ray Dalton, former USITA president, when he addressed our organization in convention in 1951. He said: "The miracle of microwave (radio) will change our industry faster perhaps than most of us realize. No doubt we shall continue to build new pole lines for some years yet, but they are already becoming obsolescent. The familiar cross-arms and bracket leads will take their place with sailing ships and horse-drawn wagons. Our linemen will yield to electronic technicians who will know less about safety belts than we know about tinderboxes.

"Not only are our own specific functions becoming more complex, but we are saddled to an evergrowing extent with unilateral communications developments. I refer to telegraphy, telephotography, radio, 'ship-to-shore,' wired music, television, etc. We cannot evade the obligation to furnish facilities for these services."

Forecast Borne Out

Mr. Dalton's forecast made 11 years ago was very wise, as we can see all around us today. Economics and the natural desire to survive and grow dictate the necessity of our studying new, better and more effective methods of providing services to our customers and potential subscribers. Radio, as Mr. Dalton counseled, might prove to be the answer where conventional land line would not or could not do the job. In the main, Independent companies have not utilized radio sufficiently to become adept at what might appear to be a complicated course to the inexperienced.

Though radio transmission is not a new facility to California Interstate Telephone Co., we are not by any means experts in the medium. We do not have inexhaustible manpower to devote to *individual* research, development and application. In other words, our resources are limited as a matter of practical economics. Yet we can perhaps overcome some of the inadequacies dictated by economic considerations by once again working together and pooling our individual resources of knowledge, development and application in the field of radio communication. My report is addressed to the subject of how this "working together" is actively being applied right now in southern California.

L. R. SCHULTZ

There are two major radio frequency groups in general development and use at this time with which we in the telephone industry are very much concerned.

One of the groups is the 150 and 450-megacycle bands used for mobile, order wire, rural subscriber, urban, air-ground, personal signalling, etc., with a total of only 23 sets of specific frequency assignment possibilities.

The other group is in the 6-kilo-megacycle band assigned for point-to-point use for message toll, lease lines, telegraph, television, etc. This band of frequencies is limited to only 16 channel groups of specific frequency assignment possibilities.

Another portion of the spectrum, the 11-kilo-megacycle band, is coming into use, but for purposes of my report, I shall confine the problem of our extremely limited spectrum assignments to the other two principal groups.

Frequencies Sought After and Used

As if restriction in quantity were not enough, we must face the fact that the Federal Communications Commission grants license for use of these frequencies not only to franchised public communication utilities such as ourselves, but it will grant the use of these frequencies to almost any miscellaneous common carrier that purports to have a need for their use. In southern California alone I would estimate that there are several hundred organizations eligible for these precious few frequencies.

Moreover, not only are they eligible, but for the most part they are active in the bands and are competing with us for business.

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*Mr. Schultz, Central Office Equipment Engineering Supervisor, California Interstate Telephone Co., Victorville, presented this report at a meeting of the California Independent Telephone Association in Fresno on Feb. 8. Mr. Schultz' background includes communication, operating and engineering with Independent and Bell companies and the petroleum industry. He is a member of the Independent Telephone Pioneer Association, American Institute of Electrical Engineers, and Institute of Radio Engineers.

To further compound the situation, just because the FCC grants you a license to operate on a specific frequency is no assurance that your neighbor does not have or could not secure the identical frequency. The FCC will grant, and has granted, license to operate to more than one organization where conflict of transmission is present.

We must be ready to adopt, develop and furnish any accessory that has

(Continued on page 32)

Part I concerns the common carrier system (telephone). Part II concerns the SAGE system. All equipments are collocated. The information on the SAGE system is identical to the common carrier system unless otherwise specifically noted.

RADIO SYSTEM SUMMARY - POINT TO POINT — LOCATED AT: **Crestline, California**

COMPANY: **California Interstate Telephone Company** — DATE: **1/25/62** — PAGE **1**

CHANGE	FREQUENCY TX (MC.)	FREQUENCY RX (MC.)	RECEIVER LOCATION	CALL LETTERS	GEOGRAPHIC COORDINATES	TX OUTPUT WATTS & EMISSION	ANTENNA GAIN	ANTENNA TYPE & POLAR	ANTENNA AZ	GROUND ELEV.	TYPE OF SERVICE	IN-SERVICE DATE	INITIALS
	Part I												JW
	6286.2 (To Victorville)	6404.8	Same location as transmitter	KMQ78	34° 14' 25"N 117° 18' 47"W	F-9 @ .1 watt	43.0 DB	Dish Horiz.	2° 30'	5325	P to P Common Carrier	5/58	
		6004.5 6123.1 (Fm Victorville)	Both dual freqs. for frequency diversity										
	6256.5 (To San Bdno.)	6034.2 (Fm San Bdno.)		KMQ78	34° 14' 25"N 117° 18' 47" W	F-9 @ .1 watt	38.5 DB	Dish Horiz.	180° 30'	5325	P to P Common Carrier	5/58	JW
	6375.2	6152.8	Both dual freqs. for frequency diversity										
	Part II												JW
	6189.8 (To Victorville)	5967.4 (Fm Victorville)					43.0 DB	Dish Vert.	2° 30'		P to P SAGE	10/61	
	6308.4	6086.0	Both dual freqs, for frequency diversity										
	6234.3 (To San Bdno.)	5952.6 (Fm San Bdno.)					38.5 DB	Dish Vert.	180° 30'		P to P SAGE	10/61	JW
	6352.9	6071.2	Both dual freqs. for frequency diversity										

Fig. 1

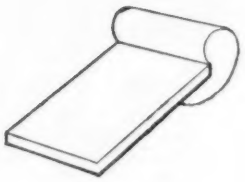
RADIO SYSTEM SUMMARY - MOBILE — LOCATED AT: **Daggett, California**

COMPANY: **California Interstate Telephone Company** — DATE: **1/25/62** — PAGE: **1**

CHANGE	FREQUENCY AND/OR CHAN. (SHOW IN MC.)	CALL LETTERS	GEOGRAPHIC COORDINATES	TX OUTPUT (WATTS) & EMISSION	ANTENNA GAIN	ANTENNA TYPE	ANTENNA AZIMUTH	GROUND ELEV.	TYPE OF SERVICE	IN-SERVICE DATE	INITIALS
	152.57 (To Manix)	KNB48	.5 mile North of Hwy. 66 5.4 mi East of Daggett, California 34° 51' 13.5" N 116° 47' 32.5" W	120 watt (input) F-3 Emission	7.5 DB	Corner Reflector	58° 30'	1928	Rural Radio Service (FAA)	6/60	JW
	152.75 (To Hector)	Same	Same	Same	Same	Same	101°	Same	Same	Same	JW

Fig. 2

The Plant Man's NOTEBOOK



By RAY BLAIN, Technical Editorial Director

THE SOUTHERN NEW England Telephone Co. will place an emergency alarm system in service at Waterbury, Conn., early this spring.

The 465 telephone call boxes located throughout the city will each be connected by a direct line to a central switchboard located in the city hall. This will be the third system of this type installed by the company. New Haven has had a similar emergency system since 1957, and West Hartford, since 1960.

The outstanding feature of the system is that it provides a means of obtaining more accurate emergency information, easily and quickly. All 11 fire houses in Waterbury will be connected to a two-position switchboard which will be manned, around the clock, by city employes.

When this new system is placed in service, a person reporting a fire or police emergency will simply open the door of one of the bright red boxes, pick up the receiver, and be instantly connected with a dispatcher at the switchboard. No dialing is necessary. A panel light on the switchboard will go on and a buzzer will sound when a call comes into the switchboard. Even if the person hangs up, as a frightened child might do, the light will remain on to indicate the location of the emergency.

Experience gained in other cities where this type of system is in operation indicates a sharp reduction in false alarms. Automatic recording of all emergency calls provides a permanent record of messages received.

•

If Sen. Karl Mundt of South Dakota has his way, the large granite faces of four American Presidents on Mt. Rushmore will soon be talking.

Mundt would have them wired for sound to deliver speeches on freedom. On one of his recent African junkets, he got this idea from the Sphinx of Egypt, which delivers a wired message on the lessons of history.

This proposal for Mt. Rushmore has aroused a storm of protests from many who wish to preserve a dignified atmosphere for Washington, Jefferson, Lincoln, and Theodore Roosevelt, as they look down from their position of grandeur. Despite all this, Mundt insists that he will present his idea to Congress.

•

We have a letter from Leslie B. Harmer, general manager of the Bermuda Telephone Co., Ltd., advising us of a recent change that has taken place in Bermuda overseas telephone service. As of Jan. 8, 1962, the island of Bermuda was connected to Manahawkin, N. J., by a coaxial submarine cable some 865 miles in length at a cost of about 9 million dollars.

This cable is jointly owned by AT&T and Cable & Wireless, Ltd., a British company. The terminating and switching arrangements at the Bermuda end are handled by the Bermuda Telephone Co. Ltd. This company operates about 16,000 stations connected to seven dial exchanges.

We are advised that coincident with the establishment of the 14 channels to New Jersey and four channels to Montreal, there has been a tremendous improvement in the overseas service. Calls have been flowing through smoothly and clearly on practically a "no delay" basis, to all corners of the United States and Canada, and even to Europe. Because of the very long delays previously experienced under radio conditions, the Bermuda company has had difficulty in persuading its subscribers to remain by their telephones for the completion of overseas calls.

•

We have just received the first issue of "The Telephonist", published by the Association of Independent Telephone Experimenters, P. O. Box 526, Ann Arbor, Mich.

This organization of teen-age experimenters has been organized for the purpose of promoting an active interest in all phases of telephony; to pool knowledge for the benefit of all members; to secure jobs in the telephone industry for members; and to help obtain required equipment. Interested parties are invited to write for complete details.

•

An old-time telephone directory carried the following warning to subscribers:

"Ringing on a line before 6 a.m. or after 10 p.m. is positively forbidden, except for a doctor. Subscribers must not hold the line for longer than five minutes. Interrupting a conversation, whistling, or making other noises will be deemed cause for removal of your telephone."

•

The General Telephone Co. of Illinois, Bloomington, has presented two switchboards to high schools, to be used as teaching aids in business, science and manual training arts classes. The schools also received two telephones and the necessary power equipment which, once installed, will make the switchboard operations identical to the ones actually in service in the nearby commercial exchange. Certainly, this is a fine arrangement to improve the public relations of any company in any community, and to interest students in selecting telephony as a career.

•

Some say that the modern boy scout helps an old lady across the street by slowing down his sports car.

•

Pavement surfaces that "talk back" to drivers are claimed to be reducing auto accidents in California.

"Rumble strips" consisting of areas of small stones glued to the pavement are used to alert drivers to changing road conditions. Accidents were sharply reduced following the installation of these strips at four different accident-prone locations. Engineers attribute these favorable results to the added visual, audible and tactile stimuli produced by the rumble strips.

The noise level in a vehicle with closed windows is raised from 92 db background to 102 db on the strips. These strong signals help alert the drivers to changing road conditions.

Driver reaction times are faster in response to audible and tactile stimuli than to visual stimuli. In addition, roads where drivers are preconditioned to expect high speeds and few hazards, or where drivers' boredom may result in visual hallucinations, are especially in need of strong stimuli such as the rumble strips.

•

Instant transmission of data by telephone directly from the human body to remote recording instruments located anywhere will soon be possible through the use of special Data-Phone sets now under development. The system of transmitting "live" electrocardiograms is presently under development by the Bell Laboratories, and this service will be made available to doctors and hospitals sometime next year.

Tests on the transmission of x-rays by telephone are also being conducted in current investigation of the most efficient and economical means for the transmission of other types of electronic medical data over telephone facilities.

These future services were previewed for the medical profession during the American Medical Association's recent convention in New York City. During this demonstration, "live" electrocardiograms were transmitted by telephone from the heart of "patients" to a Honeywell 906c Visicorder which produced graphs instantly.

This system, termed a major advance in medical communications, makes it possible for a consulting specialist anywhere in the United States to receive instant data on heart performance by telephone, even during an actual operation.

In practice, a medical attendant telephones the number of the one or more locations which will receive the electrocardiogram after attaching electrodes to the patient. Then, by pushing the data button on a compact Data-Phone set, heart pulsations are transmitted over the telephone to a recorder at the receiving location.

"Cross Talk"

We must choose between peace on earth or earth in pieces.

•

Next to being shot at, and missed, nothing is as satisfying as an income tax refund.

•

Parents are defined as people who bear infants, bore teenagers, and board newlyweds.

Plant Man's QUIZ

By RAY BLAIN, Technical Editorial Director

Q. Why is plastic cable sheath always black? Why not white, or some other more attractive color?

A. To answer this question, we quote the following from "On The Line", published by the Engineering Division of the Australian Post Office:

"Polyethylene is an excellent cable sheathing and is used to protect thousands of miles of telephone cables. It is tough, light and long-lasting. But polyethylene has a powerful enemy—oxidation, caused by sunlight and heat. If polyethylene is exposed to sunlight, after a time, it will split and shatter. This problem had to be conquered before polyethylene could be used to meet the rigorous demands of outdoor cable sheathing. The remedy is simple yet highly effective; it is to add a small quantity of carbon black powder. This actually screens out the sun's rays (the ultra violet rays which cause sunburn in people) and prevents damage to the plastic, but it does, of course, produce a black-colored sheath.

"Some of you will say that you have seen outdoor power cables with red or gray or other color sheaths and also colored telephone drop wire and bridle wire, but these are made of PVC, not polyethylene. Polyethylene is superior to PVC for telephone cable sheathing."

•

Q. Will it be possible to obtain a composite cable to accommodate toll and exchange pairs, and a video pair under one sheath?

A. Yes, this is possible, and cable of this type is being extensively used at the present time. In the cable of one manufacturer, the basic video pair consists of two conductors of 16-gauge solid, annealed, uncoated copper wire, insulated with foam polyethylene. A polyethylene helically applied core tape, in conjunction with reinforced polyethylene fillers, provides a round core. A longitudinally applied copper tape and helically applied overlapping copper tape afford 100 per cent coverage. An inner jacket is placed over this construction. Toll or exchange type pairs are then cabled over the video cable, and non-hygroscopic core tape, longitudinally corrugated copper shield, and molecular weight polyethylene jacket make up the complete cable.

The video pairs are generally used for remote TV, for pick-up points such as athletic fields and sports arenas. Practically any high frequency application such as closed circuit TV, telephone carrier circuits, and microwave stations can be served. Cables containing the video pairs are suitable for aerial or duct installation or can be armored for direct burial and submarine use.

•

Q. What method is recommended for securing a ladder to a strand, so that a splicer may stand on it while working on an aerial cable?

A. In the interest of safety, it is recommended that a special ladder support be used that has been designed for this purpose. This support consists of two screw clamp assemblies, grooved to fit the strand and a "U"-shaped aluminum pipe fixture. The clamps are also equipped with chains for encircling the cable and strand, as an added safety precaution. The "U"-shaped fixture rigidly supports the ladder away from the strand which permits a splicer to sit (using a ladder platform), or stand between the ladder and the cable.

•

Q. Would it be possible to provide a special alarm pair to quickly indicate the presence of moisture in important communication cables?

A. A special alarm pair can be included in each core of special cables if desired. These alarm pairs may be placed on test, so as to immediately indicate the presence of moisture on cables in service when their electrical characteristics are critical and could be affected by even slight presence of moisture. These pairs may also be used as working pairs, when not serving as alarm circuits.

TRANSMISSION NOTES

For Private Line Installers

By D. G. PLASKETT*

TODAY, AN INSTALLER or repairman often finds himself struggling with the mysteries of howling circuits, balancing networks, hybrid coils, and transmission measuring sets which don't read what they are expected to when tone is sent over an exchange line to a private line customer's equipment. Let's leave out the vector algebra and discuss some of the problems that the man on the job has to consider, as he tries to match the readings on his transmission measuring set with the engineer's calculated figure. Central office equipment and test sets have known stable impedance and loss values, but line facilities to the subscriber's premises vary from one circuit to another. Cable impedance varies with the gauge, capacity, and type of loading, but it doesn't reach this characteristic impedance value until there is at least a minimum amount of it. On some short loops, the line impedance is such a minor factor that the office impedance can be matched directly to the customer's equipment.

More often, a long exchange loop is made up of a variety of different cables and lengths, and the characteristic impedance might become questionable. I remember one such circuit which had five different cables and included some rural distribution wire. The loop was long enough to have some characteristic impedance, and the circuit was balanced only by comparing different networks until the best singing point was obtained.

Determining the Line Impedance

Generally, the largest amount of cable nearest the hybrid coil determines the line impedance. This largest amount of single impedance should have at least 3db of loss or, in the case of some low loss toll facilities, it should be at least two miles long. (See *Fig. 1.)*

With this impedance value determined, it is necessary to match it with central office, customer equipment, and test set impedances, without creating the reflected power that results when two unlike impedances are joined together. This means that for accurate readings, the tester has to use an impedance matching coil to match his 600 ohm test equipment to cables with a different impedance. If reflected power is unavoidable, the calculated amount is available from engineering tables. Return losses for nonloaded exchange cables are as follows:

Reflected Losses for Nonloaded Cables Terminating in 600 and 900 Ohms

	26ga.	24ga.	22ga.	19ga.	16ga.
At 600 ohms	-0.4db	—0.6db	—0.7db	—0.5db	—0.1db
At 900 ohms	—0.7db	—0.6db	—0.4db	+0.1db	+0.7db

Reflected losses for most loaded facilities are *positive* values and, when applied to the net loss, they increase the loss making a lower reading on the measuring set than is expected. On the other hand, a 22 gauge, nonloaded exchange cable connected to a 600 ohm test set would result in a —0.7 reflection. If the circuit net loss is actually 5.0 db, the —0.7 reflection would be added arithmetically, so that 4.3 db of loss would be read on the measuring set.

Other Losses

Other losses which might affect the readings and which might have been overlooked by engineers are the losses of office wiring, auxiliary trunk equipment, etc. The signal generator and measuring sets must be calibrated against a dependable standard.

With these considerations in mind, the final reading should be within ±1.0 db of the engineered net loss value. This tolerance is expected to account for:

(a) Effects of temperature variations from 68° F.

(b) Cable end sections other than the standard .5 section.

(c) Accumulating current losses.

Hybrids and Singing Points

Some private lines are designed as four wire circuits right to the customer's premises, and it is here that the installer becomes involved with hybrid coils and singing points. The hybrid coil is a coil arrangement which separates the receiving currents from the transmitting currents, usually so they can be diverted to their separate repeaters. It uses the principle of equally opposing induced currents to achieve this separation. As long as the coil windings are *equally* opposed, the currents will split properly, but if they become unbalanced, some of the receive power will cross the hybrid coil, get into the transmit circuit, and add to the normal currents being amplified until the circuit's singing margin is exceeded. The circuit then begins to sound "hollow" or "high" and will soon go into a sustained oscillation and "sing". In this condition, the circuit could sound

*D. G. Plaskett has been associated with the plant department of the Bell Telephone Co. of Canada for the past 15 years.

as if someone has left tone on it, and of course, the singing will interfere with transmission tests.

The first attempt at correction might be to restore the hybrid balance, but if it's necessary to restore service to the customer, the repeater gains can be reduced as a temporary measure. When the hybrid is connecting directly to customer's equipment, a simple compromise network, consisting of a 600 ohm resistor in series with a m2fd, should balance the station equipment. The question is: Is the cause of the unbalance in the station equipment or in the hybrid coil?

Singing Point Test

A test of the singing point will verify that it has fallen below the requirement and will help sectionalize the location. A singing point test set (or a spare repeater) is connected across the four wire side of the hybrid, while a receiver is left "off hook" at the customer's telephone. *(Fig. 1)*. Gain is increased in the test set until the circuit begins to sing. The gain of the repeater or test set is measured, and the transhybrid loss is subtracted from the gain. The remainder is the singing point, and it should be at least the value calculated by the engineer. (Note: The transhybrid loss is the combined losses in the receive leg—line, pad, hybrid—plus the loss in the transmit leg—hybrid, pad, and line. (See *Fig. 1)*.

To determine the location of the trouble, disconnect the subscriber equipment and connect 600 ohms in series with 2 mfds across the two wire side of the hybrid. A telephone set with the receiver off the hook or a repairman's handset will do as a substitute. The hybrid compromise network is now balanced by the termination, and if the hybrid coil and options are good, a lot of gain can be added in the repeater test set. The singing point should be very high now, in fact

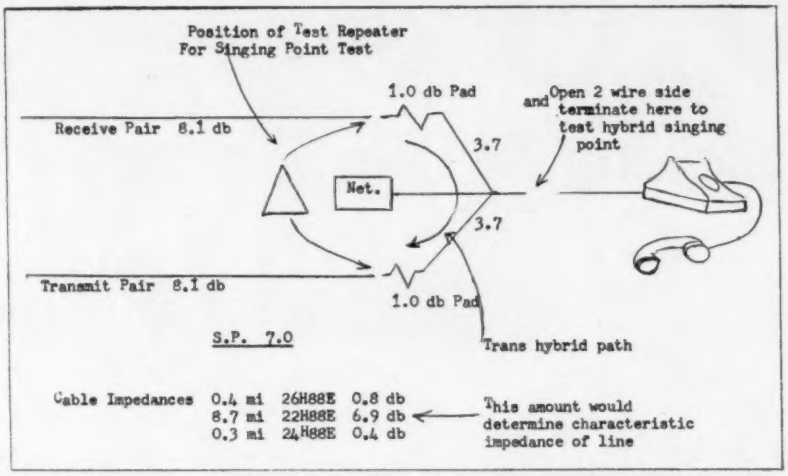

Position of Test Repeater
For Singing Point Test
1.0 db Pad
and Open 2 wire side terminate here to test hybrid singing point
Receive Pair 8.1 db
3.7
Net.
3.7
Transmit Pair 8.1 db
1.0 db Pad
S.P. 7.0
Trans hybrid path
Cable Impedances 0.4 mi 26H88E 0.8 db
8.7 mi 22H88E 6.9 db
0.3 mi 24H88E 0.4 db
This amount would determine characteristic impedance of line

Fig. 1. A four wire circuit connected to a hybrid coil at the customer's premises. Transhybrid loss (25.6) subtracted from test repeater gain would indicate singing point which should at least equal the engineered requirement of 7.0.

the circuit may not sing at all if the balance is particularly good. This would indicate that the hybrid is good, the wiring options are correct, and the balancing network is not open. When the customer's equipment is connected, a good singing point should be maintained. If not, better check the options and wiring of the station equipment since it doesn't appear to be a standard termination to the balancing network.

A Typical Problem

Recently, we had a four wire multipoint private line that developed a singing condition. The engineer's calculations called for singing points taken at the subscriber's premises. We reasoned that the singing point could also be read at the cable jacks in the central office, if the line loop loss was added to the transhybrid loss. From the central office the singing point was —3.0. At the customer's equipment the singing point was 9.0, two over the requirement of 7.0. This indicated that the hybrid network was balancing the equipment termination until the line was added. The cable pairs were tested and found free from any faults. Everything tested good, but the circuit still howled.

It was reasoned that a circuit sings when its combined gains exceed its combined losses. We knew how much gain was in the repeater test set; therefore we thought our estimation of the losses must be wrong. A man was sent to the hybrid coil to measure the losses through the transmit and receive sides. They corresponded with the calculated values. The loss was again checked back to the central office and was found to be correct, but the circuit still howled when the receiver was lifted. Perhaps it was the low tone of the sing that made us look to the loss curve at different frequencies for that type of nonloaded exchange cable. We discovered that there was less loss at 300 cycles than

(Continued on page 61)

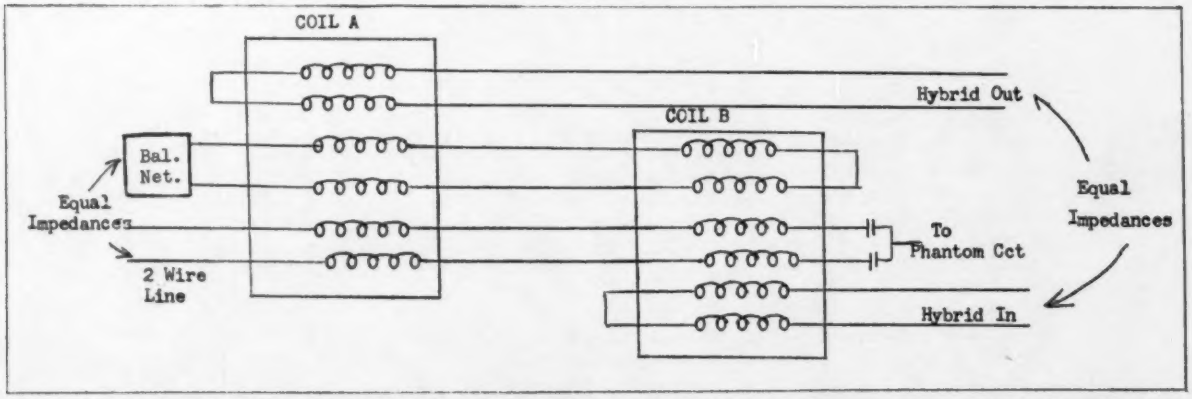


Fig. 2. A basic hybrid coil arrangement. When the impedances are equal, the equally opposed currents in the coil windings will separate into Receive (hybrid in) and Transmit (hybrid out) paths.

Looking At Our Services

Through The Customer's Eyes

By Carl W. Carlson*

HOW GOOD ARE our services to the customers—the services we take for granted each day, as does the customer? These services are the foundation on which we build our customer relations—*our good will.*

Our companies—yours and mine—have been engaged in sales programs for some time now. We have found that the customer has a need for additional services. We have found that our people can—and will—sell—if only told how.

The sale of new and additional services is essential to us. We must not fail to keep our customers informed of new offerings. This is a "service" our customers expect of us, in order that they may have the use of the latest communication equipment. I am not going to discuss this kind of "service" (at this time), however.

I would like to discuss our basic services—prompt installations, prompt billings, good operator services, efficient payment procedures, and most important—fast repair service. We need to improve these basic services, train our people *better* in rendering them, instruct them how to improve these services and most of all—insure that they are dispensing them.

Before I go any further, I would like to point out that this discussion has been purposely designed to be critical. We all know that telephone services generally are some of the best offered by any type of service company.

I have taken complaints—everyday common complaints, and categorized them to endeavor to review some of the things we still need to improve upon. I will not recommend anything—the areas of improvements are simple—mainly training and attention. I do not want to make us feel that things are so bad they couldn't be worse. We are not all guilty of these complaints, nor are we guilty all of the time; however, our customers, implied or not, say these things about us.

Let us now look at our "Services From the Customers' Viewpoint."

A. Requests for New Service or Additional Service

(1) We are constantly criticized for having lengthy installation schedules. (I am not referring to new construction projects.)

(2) Our work schedules are too rigid—not flexible enough for emergencies.

(3) We appear to pass the buck—often advising "as soon as our engineers report," or "new cable is on order."

(4) When customer gives specific instructions—such as "call before going out" or "for access, go to neighbor"—we fail to follow these instructions.

(5) We fail to have current information on service requests at one place. Customer unable to get all questions answered.

(6) We fail to keep our appointments.

B. Traffic

(1) When customer calls company switchboard, and lines to specific department are busy, we ask the customer to call back.

(2) Company PBX operator fails to get complete information and call is misdirected. Calls have to be transferred several times.

(3) Information service for new service is delayed.

(4) Inadequate or delayed training of operators. Complaints about operators not knowing about area codes and ANC.

(5) Practices and policies too rigid.
Example: Changing type of call once it has been filed. Changing from person to person to station to station if called party was unavailable.

(6) LD service answering time too slow.

(7) Poor handling of calls by operator.
a. Ringing while talking.
b. Asking for number after called party had answered.

C. Monthly Bills

(1) Billed for LD calls not made—*and* delay in making adjustments when promised.

(2) Billing errors—Quoted one charge and billed a different charge.

(3) Rendering bills late. Also being dunned.

(4) Failure to have copy of customer statement, thus delaying and causing call back.

(5) Unable to make special payment arrangements.

(6) Failure to constantly review customer accounts, thus learning paying habits.

D. Public Office

(1) Inadequate teller positions.

(2) Tellers not attentive—appear to be too busy with clerical duties to be cheerful and helpful.

(3) Improper attire by tellers.

(4) Tellers' personal effects in view—purses, packages, etc.

(5) Not enough facilities—chairs, desks, etc.

(6) Too much traffic through public office by company employes.

E. Public Telephones

Customers like and use this service. Revenue surely indicates it.

(Continued on page 38)

*Mr. Carlson is commercial manager of the Winter Park (Fla.) Telephone Co. He presented this talk at the Florida Telephone Association's convention.

Cable laying goes compact with new John Deere 1010

The new 40-engine-h.p. John Deere "1010" Crawler with 230A Cable Plow has the long-pull power and fast-handling flexibility to make buried-wire installation pay. Following dirt road grass lines out where it may be a mile between mailboxes, or plowing in drops in a new housing addition, the versatile, low-cost John Deere provides a number of advantages to companies of every size.

With minimum soil displacement, the unit lays multiple pairs of wire, or PIC as large as 1-3/16 inches in diameter, at any depth from 6 to 28 inches. No backfilling is required—cut is compacted by wheels of the line truck or by the tractor treads.

Wire or cable is inserted in the cable guide without cutting, threading, or splicing. Entire cable channel is opened by removal of a locking pin and retaining bar. Roller-equipped guides direct the cable through the plow, for minimum drag.

The John Deere 624 Bulldozer blade supports the reel carrier, or the plow can take its supply directly from a preceding line truck.

The John Deere dealer, listed in your "Yellow Pages" will be pleased to arrange a demonstration for you.

JOHN DEERE

TRACTORS
BACKHOES
CABLE PLOWS
AND
CONSTRUCTION
EQUIPMENT

THE TRAFFIC PAGE

By WINNIE BURNETT

POTPOURRI, MAINLY for operators: The word "voice" is defined as the sound, or sounds, uttered through the mouth. To a telephone customer, however, it may well be defined as the voice or *sound*, of your company.

I believe it was Longfellow who said, "How wonderful is the human voice. It is indeed the organ of the soul. . . " These words should inspire us to train our speaking voice, to modulate our tone of voice, and to give voice only to worthy thoughts. Also, they should inspire us always to give *pleasant* service to our customers.

Your principal means to make service attractive are courteous attention, a *business-like* manner, good tone of voice, and efficient operating.

Show a personal interest in your work.

ALWAYS SPEAK DISTINCTLY, your speech not too fast or too slow, and with expressive, natural emphasis.

Avoid unnecessary questions, repetitions and mannerisms which may displease a customer, such as splitting connections unnecessarily.

Adapt your phraseology to the customer, if desirable. If the customer has difficulty understanding a report, disregard ordinary phrases, and express the thought in words suitable to the occasion.

Good telephone service means prompt, courteous, and accurate attention, and it is the responsibility of each operator to see that customers receive such service.

Prompt attention to signals as they appear and answering them in the order of appearance will help speed up answers. *Do not* plug into a signal until you are ready to give service. If a signal is plugged out before you can handle the call, no other operator can give service on that call. Always have your key open when you plug into a signal.

The customer should be permitted to place a call in his own way—without unnecessary interruptions. Enter the necessary details on the toll ticket as they are received and avoid unnecessary questioning. Advance the call as soon as the *called details* are obtained, and secure the calling details as an overlapping operation. *Never delay* the advancement of a call to secure calling information. If an "NC" condition exists, secure the calling details while waiting for a circuit.

GENERALLY, THE DETAILS required from the calling party are the called place and number, and the calling number. All ticket entries must be legibly entered in the proper space on the ticket.

If T & C is requested, encircle the T & C in the "Spec. Inst." space. Encircle the charge when it has been quoted.

If the call is collect, secure and enter the calling party's name. Encircle "col" in the "collect" space, and if the charge is accepted, encircle "yes." If the charge is not accepted, encircle "no." If the calling party will pay for the call, draw a line through "col," enter "ag pd" in the space for reports, and proceed as on a paid call.

If a request is made to transfer the charge to a third telephone, secure and enter the calling party's name and enter "bill (pl) (no)" in the "Spec. Inst." space. Line through the calling number and any entry in the "col," "yes" or "no" spaces. If the called party requested the transfer, enter "req. by (cld pl) (cld pty)" in the space for reports.

If the called place is a locality point, enter the Exchange Rate Center name, *in parentheses on the same line* or on the line just beneath the "To" place name. Enter any route information secured from the route operator in the proper space on the ticket.

YOU ARE THE "CHIEF Operator" of your position. Whether you are a good or bad chief depends upon the manner in which you arrange your work so that each step follows the other smoothly, without unnecessary pauses. In order to do this, you must take advantage of every opportunity to overlap and must make full use of intervals of waiting. Examples are:

(1) Listen and write, or talk and write at the same time.

(2) Pick up the cord to be used to advance the call as soon as sufficient details of a call have been received.

(3) Overlap in consulting position information, placing sleeves or removing them, attaching and removing clips, ringing, releasing circuits and trunks, stamping tickets through and in ringing to clear (where no verbal clearance is required), when necessary.

(4) Prepare to answer the next signal by picking up a cord while starting a conversation, or reporting ready, or stamping a ticket. These are "one hand" operations.

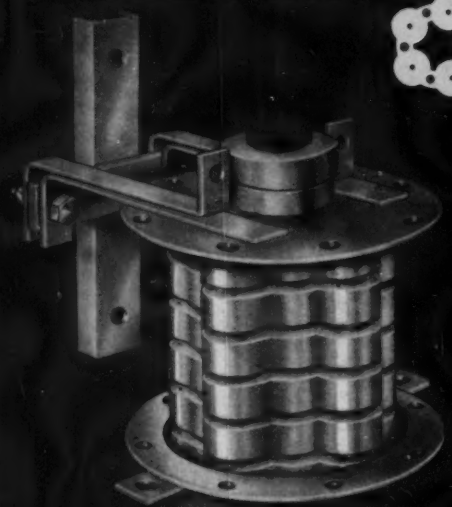
(5) Except when it will interfere with your work, keep your pencil in your hand.

(6) When a routing or required rate is not listed at your position, reach the rate and route operator while entering called details on ticket.

(7) Prepare to insert ticket in cal-

(Continued on page 42)

It's Expansible!



THE COOK

EXPANDABLE COIL CASE

with 88 mh or 44 mh LOADING COILS

LOADING COIL ELECTRICAL PROPERTIES

Type of Coil	CHARACTERISTICS							
	Nominal Inductance (MH)	Inductance Unbalance (%) Maximum	D.C. Resistance (Ohms) Maximum	D.C. Resistance Unbalance (Ohms) Maximum	Effective Resistance (Ohms) Maximum	Dielectric Strength Between Winding (D.C. Volts) Minimum	Insulation Resistance (Megohms) Minimum	Cross Talk Loss Between Adjacent Coils (Decibles)
613-344	44	.5	5.4	.2	7.1	10,000	10,000	90 or Greater
614-343	88	.5	8.5	.2	11.0	10,000	10,000	90 or Greater

COOK ELECTRIC Company

Since 1897

2700 SOUTHPORT AVENUE CHICAGO 14, ILLINOIS

RADIO FREQUENCY COORDINATION

Concluded from page 23

real merit and which will improve and enlarge our service. Recognizing the facts for what they are and also that we cannot evade or otherwise dispose of radio transmission, my company felt that we should become a part of a team which would provide to us information regarding the doings of our associates in this field. Hence, in October and November of 1961, representatives of five major southern California telephone operating companies discussed the subject of coordination of our ope ations.

We felt that, as adjacent communication companies with the same goals of service to our customers, we should coordinate our efforts in the field of joint frequency usage so as not to leave an impression of disorganization in the minds of government or the general public. We recognized that coordination had been virtually nonexistent and that a more positive method of insuring reliable frequency assignments was an absolute must. Though such coordination was not necessarily a panacea for all our problems, nevertheless it was a positive step forward.

We recognized regretfully that all of the common-interest frequency users were not present in our committee, but we felt that there was a sufficient sampling to get started. It was agreed to establish a committee consisting of a representative from each of the five companies. The committee was chartered to:

(1) Establish records of existing services.

(2) Establish records of existing plans for the next six months.

(3) Establish means to keep these two records current.

Forms Agreed Upon

Two single-sheet forms and an outline for their use were developed. (See *Fig. 1*, a point-to-point radio system summary; *Fig. 2*, a mobile radio system summary, and the outline at the end of the article.) The forms contain common informative data and are to be issued by the originating company's committee member, and such forms are sent informally and directly to all other members. The recipients are responsible for the further dissemination within their parent companies. Plans and records received are primarily for the information of engineers. Further, the originator does not warrant that plans will necessarily be executed as stated nor that the records shown are absolute.

The whole operation is one based purely on "good faith" with each participating company continuing to maintain its individual sovereignty.

Lastly, it was felt that once the committee established an informal routine it would not be necessary to meet unless we desired to avail ourselves of the opportunity to exchange experiences through this means of having a common forum.

The cooperative aspects of this approach are not new. Other industries, interested in other portions of the radio spectrum, have formed similar committees. I do not know if other geographical areas in our industry have formed committees along these lines, but I suggest that if the problem is generic they might consider this approach. Following is the outline of the data which are contained in the forms which each of the five coordinating companies files and keeps up-to-date:

Explanation of Radio Equipment Summary Mobile and Point-to-Point Microwave Forms

1. Purpose:

In October and November of 1961, representatives of five southern California telephone operating companies, namely, California Interstate Telephone Co., California Water & Telephone Co., General Telephone Co., of California, The Pacific Telephone & Telegraph Co., Los Angeles and San Diego, and Sunland-Tujunga Telephone Co., felt that it was necessary to establish an informal procedure of advising each other of existing and anticipated common radio use.

Standard forms were devised as the means to:

(1) Establish records of existing services.

(2) Establish records of plans.

II. Definitions:

Standard abbreviation used in telephony may be used in the preparation of these summaries providing it does not confuse the reader.

III. Line-by-Line Explanation of Forms (See *Figs. 1* and *2*):

(1) *Located at*: The transmitter location.

(2) *Change*: check (x) if this is a change from a previous issue.

(3) *Frequency*: TX—transmitter(s), RX—receiver(s).

State exact frequency in megacycles and standard channel designator (JS. ZM) code if known. Otherwise state frequency band.

(4) *Receiver Location*: Station name and county location—i.e., Phelan, San Bernardino; Padua Hills, Los Angeles; Borrego, San Diego; Bishop, Inyo.

(5) *Call Letters*: State station FCC identification when known.

(6) *Geographic Coordinates*: Longitude and latitude when known.

(7) *TX Output (watts) and Emission*: State rated power output of the transmitter in watts. State type of emission.

(8) *Antenna:*

(A) Gain: State the gain of the radiating active element and/or passive element in db.

(B) Type and Polarization: State design type; i.e.: parabolic, 6-foot, whip, etc., and polarization—i.e., vertical, horizontal, degrees.

(C) Azimuth: State the angle of the beam in degrees from true north.

(9) *Ground Elevation:* Height of location above sea level in feet.

(10) *Type of Service*: State type, i.e. radio dispatch, order wire, rural subscriber, urban, air-ground, personal signalling, etc.

(11) *In-Service Date:* Service date. If a date is not inserted within six months from the date the plan first appears on the summary, the plan will be considered cancelled.

(12) *Initials:* The initials of the person who placed the information on the form.

IV. **Routing:**

The forms will be released by the originating company's radio frequency coordinating committee member directly to all other members. The recipients will be responsible for the further dissemination within their company.

Human Touch Essential

"Power plants, slide rules, typewriters, distribution systems . . . all these inanimate things are obviously nothing without a man's touch. That is why employes are our company's greatest asset."—F. HOUGH COUGHLIN, president, Central Louisiana Electric Co.

Avoid the "Stone Walls"

"Give me the serenity to accept what cannot be changed; give me the courage to change what can be changed. And the wisdom to know one from the other."—REINHOLD NIEBUHR.

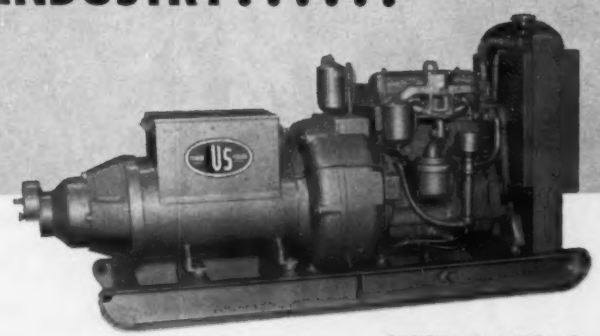
A Key to Success

"Every man is enthusiastic at times. One man has enthusiasm for 30 minutes—another man has it for 30 days, but it is the man who has it for 30 years who makes a success of life."—EDWARD B. BUTLER.

POWER SURETY OF THE COMMUNICATIONS INDUSTRY.....

10 KW DIESEL MICRO POWER

WITH NEW "BRUSHLESS" GENERATOR



MODEL MG10D-18

"NO-BREAK" MICRO POWER ENERGY IS USED...

- at telephone central offices—carrier repeater stations.
- on Microwave installations for communications, remote control, telemetering.
- by public utilities for protective relaying, telemetering and load distribution.

U.S. MOTORS 10 KW DIESEL MICRO POWER functions either as a voltage stabilizer when power from the normal source is at usable, but uneven value — or as the independent power supply when there is a complete power failure. Regardless of the situation, critical communications equipment is assured a constant source of stable voltage electric power at all times. Micro Power, smoothly and with no break in required voltage, transfers the load back when commercial power is restored, at the same time continuing in its full time role of eliminating voltage droop, drop, or break.

10 KW DIESEL MICRO POWER FEATURES —

- **no brushes, commutator, or slip rings to service or replace with new brushless generator**
- **squirrel cage motor with less than one percent slip**
- **conservatively rated bearings**
- **diodes arranged for easy access**
- **voltage adjusting potentiometer**
- **magnetic amplifier regulator mounted directly on unit**
- **overvoltage protection**

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USITA Engineering Conference Set at Michigan State

MAXIMUM UTILIZATION of Every Construction Dollar is the theme of the sixth annual Telephone Engineering Conference to be held July 1-20 at Michigan State University, East Lansing, and sponsored jointly by the United States Independent Telephone Association and the university's Continuing Education Service.

A. R. GRUEHR

About 60 top engineers from many states will be accepted for the seminar at The Kellogg Center for Continuing Education.

Frank G. La Prade, president of the United States Independent Telephone Association, points out that constantly rising costs and increasing demands for service have multiplied the responsibilities of engineers in the economic planning of plant facilities.

A. L. CHARNEY

"Engineers of both large and small companies will find this program invaluable in analyzing and coping with the problems of today and tomorrow," Mr. La Prade states.

The three-week course is designed to keep the telephone engineer abreast of racing technology in the field, to broaden his scope and to increase his value to his company.

The program of the Engineering Conference is planned to emphasize four primary areas of study, each under the supervision of an authority in his field.

"Cost Consideration in Engineering Decisions" will be handled by Dr. Anatole R. Gruehr, head of the Department of Economics and History at the Polytechnic Institute of Brooklyn, N. Y.

Dr. Gruehr, who also heads his school's Graduate Division of Economics and Industrial Management, points out that the telephone engineer constantly faces problems involving a choice between two or more engineering alternatives. In such situations, he notes, the selection of the appropriate method of cost comparison is of major importance as a guide to decision-making.

Dr. Gruehr will discuss such factors as cost behavior, fixed and variable costs, methods of comparison of alternatives, depreciation and its treatment, operating expenses, materials and supplies, taxes and insurance, proportioning of factors of production, evaluation of estimating data, and factors not adaptable to monetary evaluation.

Dr. Gruehr received his B.S. degree in electrical engineering from the Massachusetts Institute of Technology, his M.A. in business administration, and a Ph.D. degree in economics from New York University.

He was employed as division engineer, staff engineer and senior engineer by the Consolidated Edison Co. of New York, and belongs to a number of professional organizations in the scientific and engineering fields.

Frederick L. Kahn, chief telephone engineer for the Automatic Electric Co., will conduct the sessions on "Traffic Engineering and Administration."

F. L. KAHN

Mr. Kahn received his education at the Institute of Technology in Berlin, Germany, and started with Automatic Electric in 1923 as an equipment engineer. He was named director of switching systems development in 1959.

Mr. Kahn is recognized as a specialist in all phases and types of automatic switching systems. He holds patents on telephone switching systems improvements, and has written numerous articles for technical publications.

The AE executive's presentation will cover important phases of traffic engineering and planning, necessary for optimum utilization of plant without excessive investment. This will include basic objectives, review of traffic tables, concepts and standards, numbering plans, traffic orders and switch calculations for automatic central offices, IDF cross connections, interoffice and toll trunking, alternate routing and high usage trunking, planning for

HIDEYA KUMATA

HOME INTERPHONE SYSTEM

FROM BLUEPRINT TO PRODUCT

R & D LAB

NEW PRODUCTS

STANDARD PRODUCTS

AMPLIFIERS

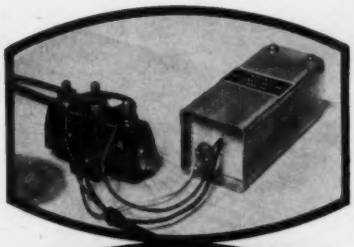
PRE-WIRING

"BRIDGE LIFTERS"

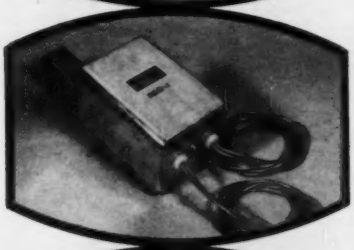
ISOLATION DEVICES

INTERCOMS

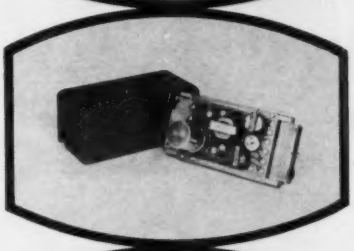
Write for application notes and engineering assistance.



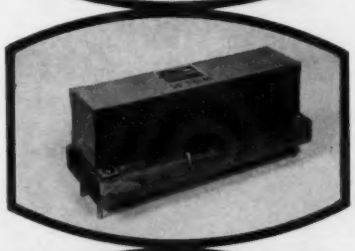
TDD-3
RINGER ISOLATION DEVICE



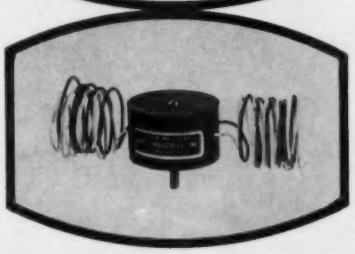
SDD-2
STATIC DRAIN UNIT



MODEL P-5
PAGING AMPLIFIER



10-TID-4L
"BRIDGE LIFTERS" (10)
MAIN FRAME MODEL



TID-4L
"BRIDGE LIFTER"
PEDESTAL MOUNT
REA accepted

ORBIT INDUSTRIES VIENNA, VIRGINIA

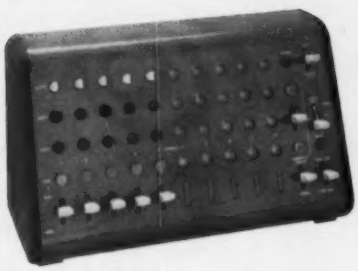
Different subscribers need different services

AE provides telephone service for every need

Each customer in your area has specific telephone needs. To meet these needs, you must provide many types of service—standard and special. Why? Because it pays off...in increased revenue and better service to your community! Your customers will pay extra for better service and greater convenience.

Are there any new customers in your area? Any old ones with new telephone needs? If so, show them the AE telephone service best suited to their particular needs. For details on our complete line of station equipment, contact your AE representative. He can also furnish you with valuable sales aids to help you promote these services. To contact him, just write to Automatic Electric Sales Corporation, Northlake, Illinois.

ELECTRONIC SECRETARY® UNIT—Answering service is ideal for fuel dealers, servicemen, realtors...any small businessman who spends time away from the office. Answers phone and takes messages 24 hours a day. Available in long or short play models.



TYPE 75 PABX—A complete communications system for the large plant. Provides from 50 to 200 central office, PBX or private lines. With compact cabinet (shown here), attendant answers, holds, transfers calls.

STARLITE® PHONE—The answer to a modern homemaker's dream. This compact phone is half the size of a regular phone. Choice of six colors. Dial light can be turned from soft to bright or completely off, anytime.

AUTOMATIC ELECTRIC

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GENERAL TELEPHONE & ELECTRONICS

GENERAL SYSTEM

distance dialing, traffic measurements, and line concentrators.

The area of "Engineering Fundamental Plans" will be conducted by A. L. Charny, general facilities manager for Bell of Pennsylvania.

Telephone companies utilize facilities which have lives of from 30 to 50 years, Mr. Charny points out. It is therefore essential that, in addition to current planning which takes care of immediate needs, there be a long-range plan which concerns itself with ways of meeting the future, and making sure that what is engineered today will fit the needs of tomorrow.

With this in mind, he will discuss current and long-range planning and objectives, growth forecasts, cost trends, integrated system design, building plans, districting arrangements and determination of wire centers, economic selection of equipment and facilities, and other related subjects.

Mr. Charny was employed by Pennsylvania Bell immediately after graduating from the University of Pennsylvania with a B.S. degree in electrical engineering. Working in many phases of telephone engineering, he was named general plant extension and transmission engineer in 1951, and in 1960, was named head of the newly created facilities department.

Since 1940, he has served as head of the engineering school of Bell Telephone Co. of Pennsylvania. He has played an important part in the introduction of such new developments in Pennsylvania as N-Carrier, No. 4 Crossbar, the coaxial cable, DDD, and numbering plans.

Another vital subject—"Communicating Engineering Decisions"—will be taught by Dr. Hideya Kumata of the MSU Communication Research Center.

Dr. Kumata earned his doctorate in communication at the University of Illinois, and taught there before joining the MSU staff. He now holds a dual appointment, serving also as an associate professor in the Department of Sociology and Anthropology. He has published extensively in such journals as the "Journalism Quarterly", the "Yearbook of Education", the "NEA Journal" and the "Public Opinion Quarterly".

Dr. Kumata notes that a major deterrent to the installation of sound engineering ideas is the inability of the engineer to communicate these ideas to his superiors, co-workers and the public.

In his sessions of the Telephone Engineering Conference, he will cover effective business communications, the organization and preparation of reports and letters, discussion leadership, persuasion, oral communication techniques, the use of visual and oral aids, and other topics.

In order to acquaint participants with the most recent technical advances in communications, authorities qualified in this field will address two special sessions of the MSU conference. An expert, in the field of finance, will discuss avenues used by telephone companies to secure funds. Question and answer periods will follow.

Applications to attend the Telephone Engineering Conference should be made before Apr. 16, and notification of acceptance will be made by Apr. 23.

For further information, or to make application, interested engineers should contact: John U. Jeffries, College of Engineering, MSU, East Lansing, Mich. Telephone: 517 355-5103.

LOOKING AT SERVICES

Concluded from page 28

(1) Outdoor booths are usually dirty.

(2) Lights are frequently burned out.

(3) Directories are either missing or dirty and mutilated.

(4) Doors in bad repair. Can't get in or can't get out!

It is recognized that most of these problems are the result of vandalism. *We* must recognize that they will be a higher cost maintenance item; however, if we are to continue to provide this service—we must see that booths are kept in the best of repair. A regular cleaning service will do much to keep outdoor booths presentable. Visual as well as simple testing procedures performed during collection periods are invaluable.

F. Telephone Installations

Generally we receive more compliments in this area than any others. Customers advise that our workmen are courteous, helpful and neat. We do, however, receive these complaints:

(1) Installation man couldn't finish work and advised he would be back next day. Didn't show up or arrived late in day.

(2) Installer couldn't work service order due to technical problems. Advised he would report the difficulty and customer would be contacted regarding new appointment. Never recontacted. Had to call business office This results in confusion.

(3) Installer unable to answer questions. Didn't offer to call business office, or refer matter to business office for later call back.

(4) Installer unable to perform additional work as service order did not include the extra work.

G. Repair Service

This appears to be the area our customers think we fall down in the most. It is recognized that when a customer's service is in need of repair, he frequently is very demanding and can be difficult. However, shouldn't we work hardest to help him when he is in this situation? Many retail companies depend exclusively on their fast and efficient repair service as their primary sales maker. I feel we could do much to improve this service, which in turn, will upgrade the company in the customers' eyes.

(1) Emergencies not handled with promptness.

(2) No special treatment for repeat trouble cases.

(3) Special treatment needed for business customers.

(4) Repair service is slow to answer.

(5) Poor answering procedures by repair.

Example:

a) Customers told to hold the line.

b) Overtones are poor.

c) Several customers on the line at the same time.

(6) Repair service refers customers to another department. Customer should be told his problem will be handled and he will be advised.

We are charged with providing the best possible telephone service at the lowest possible rate, consistent with sound financial management. In order for us to do this, we need to sell our customers *all* of the services they can possibly utilize economically, and we need to keep these services in good repair, so they will be retained.

Earlier, I said I was not going to recommend anything to improve these services to our customers. However, I feel a strong appeal should be made urging the review of training programs. Our people cannot improve these services unless we instruct them. After instruction, we need to observe. Each first line supervisor should be responsible for insuring that current practices and schedules are followed. These same supervisors should be charged with rendering simple reports.

Finally, the managers, through these reports, must review operations and recommend changes that will insure that customer services are the best possible.

Schumacher Is Marketing, Sales Head, General of Ind.

Don L. Schumacher has joined General Telephone Co. of Indiana as its marketing and sales manager, according to an announcement made by L. H. Meyer, president of the company.

Mr. Schumacher, whose appointment was effective Mar. 1, will be responsible for the overall operations of the marketing and sales department, including the coordinating and initiating of sales activities throughout the company's Indiana operating territory, Mr. Meyer said.

In the telephone industry since 1950, Mr. Schumacher has held a similar position with General Telephone of Wisconsin since 1958. His telephone experience includes supervisory positions in the commercial, directory, general merchandising, and public relations departments of General's Midwest and Wisconsin companies.

A native of Slayton, Minn., he graduated from the Henderson (Minn.), high school and served with the U. S. Navy from 1940 until 1946. Following his military service, he was engaged in business for himself in Minnesota and California.

Ariz. Center Provides Heart Information By Telephone

A sub-committee of the Tempe, Ariz. Heart Committee is opening a heart information center in Tempe which will provide telephone information on heart ailments for residents day and night.

The service is designed mainly for new residents, or for residents without family doctors of their own, according to the sub-committee's chairman.

The sub-committee was to leave a gummed label with the heart information center's telephone number at every home in Tempe during the Heart Fund drive.

Besides this center, the sub-committee is releasing a Directory of Services for cardiac patients.

New Quebec Telephone Head

Jacques Brillant has been named president of Quebec Telephone, Rimouski, Quebec, succeeding his father, Jules A. Brillant, who remains as chairman. Quebec Telephone serves 71-000 subscribers in Gaspe, Saguenay and Labrador.

Research Needed

"Plastic surgery has advanced to the stage where they can do almost anything with a nose except keep it out of other people's business."—GERALD K. YOUNG, Blakesburg (Ia.) Excelsior.

NEW
HIGHWAY'S
"Hi-Arm"
Aerial Lift
Here's a "unitized" aerial lift — vehicle and lift in one unit and at a low price. The "Hi-Arm" is ideal for overhead work — easy to maneuver, compact, lightweight, flexible, truck-mounted, hydraulic. Available in three different sizes — 28', 32' and 36', with either single or tandem cab. The two-foot-square bucket has a 300-lb. capacity. Operator can step easily from cab to basket. Write for further information and specifications.

UTILITY DIVISION
HIGHWAY TRAILER INDUSTRIES, INC.
STOUGHTON, WISCONSIN
HIGHWAY
Manufacturers of: Public Utility Bodies • Earth-Boring Machines • Pole and Cable Reel Trailers • Side Booms and G. S. Bodies • Winches • Power Take-Offs • Service Accessories • Commercial Trailers • Dry-Bulk Haulers • Cargo Containers • Land, Sea and Air.
SALES AND SERVICE IN PRINCIPAL CITIES

Courts and Commissions

General of SW Asks Okay Of Refinancing in Ark.

The General Telephone Co. of the Southwest, San Angelo, Tex., asked the Arkansas Public Service Commission on Feb. 28 for authority to sell $7,500,000 worth of bonds and $4,000,000 worth of common stock to refinance short-term loans.

The General company serves some two dozen Arkansas communities.

Approve Loan, Dial Rates, PBX Charges in Neb.

Authority to borrow funds and establish rates for dial service was granted the Cambridge Telephone Co. on Mar. 7 by the Nebraska Railway Commission.

On Sept. 6, 1961, the company was authorized to borrow up to $475,000 from the REA for the purpose of acquiring the Bartley exchange and converting the Cambridge and Bartley exchanges to dial operation. It was found that an additional $137,000 was needed, and this amount was approved by the commission.

The company provides service to about 959 subscribers over both company-owned and customer-owned facilities. The commission granted permission to discontinue switching service and to furnish all service over company-owned facilities.

The following net rates were approved effective with the dial conversion. Two-party business service was discontinued:

One-party business	$ 8.00
Rural business	6.75
One-party residence	5.75
Two-party residence	5.00
Rural residence	5.00

Also approved was a non-recurring charge of $7.50 for color telephones and a rate of 10 cents for local calls from paystations.

•

On the same date, the Nebraska commission approved rates and charges for the Southeast Nebraska Telephone Co. Falls City, for additional offerings of PBX and Call Commander equipment, as follows (TELEPHONY Feb. 10):

	MONTHLY RATE	INSTALLATION
Intercom PBX automatic:		
Automatic Electric 10-Al and 16-Al key systems		
Relay Equipment, including substation lighting for key equipment, control equipment for incoming flash, visual busy and wink or hold signals, 2 intercommunication talking links and 2 trunk terminations	$15.00	$10.00
Each additional trunk termination	$ 1.00	$ 5.00
Dial selector intercom		
Each 18-station unit	5.00	—
Optional features, including add-on conference, pre-set conference and camp-on	1.00	5.00
Miscellaneous Charges, station equipment:		
Call Commanders		
One unit	$ 7.50	$30.00
Each additional unit	6.00	30.00
Each station	1.85	5.00
All pickup keys	.40	—
Trunk Rental:		
Each trunk @ 1¼ x B1 Rate	12.80	—
Stromberg-Carlson 6K-1 key system:		
Relay Equipment, including control equipment for incoming flash and visual busy signals and 2-trunk terminations	6.00	10.00
Each additional trunk termination	1.00	5.00
Intercommunication system	1.00	—
Dial selector intercom:		
10-station selector	4.00	10.00
15-station selector	5.00	10.00
Station equipment:		
Main stations (one per central office trunk)	$10.25	$ 4.00
Extension stations	1.50	3.50
Pick-up keys, each	.30	—
Hold keys, each	.40	—
Lamps, each	.25	—

Ask NET&T To Lower Intrastate Tolls in R. I.

Rhode Island Public Utility Administrator, Mortimer W. Newton announced on Feb. 26 that New England Telephone & Telegraph Co. has been asked to reduce intrastate toll rates on calls covering distances of 30 to 45 miles within Rhode Island.

Mr. Newton said he had asked NET&T to bring these intrastate rates to the level of interstate rates over similar distances, which now run from 5 to 15 cents per call less.

In a letter sent by Mr. Newton to George D. Noble Jr., NET&T general manager in Rhode Island, the company was asked if it would lower the rates without requiring a public hearing.

The letter also mentioned that in view of changes in the separations formula for allocation of interstate and intrastate plant, "your company will be in a favorable position to ad-

38 toll calls a month is nothing for her...

and billing her is no problem with the Recordak System!

Gone are the days when you had to post a description of each toll call on a bill. Recordak microfilming makes the difference. Now you simply enter the total of all toll calls (and tax) on bill . . . microfilm it and the toll tickets . . . and send to subscriber! Billing is that easy no matter how many calls are involved.

You save three ways! 1) Do away with 85% of the postings formerly required—which just about cuts your toll billing costs in half. 2) Get an easier reference record which is photographically accurate and complete. 3) Reduce the time spent answering customers' questions about forgotten calls—getting toll tickets along with bill gives them full details on charges.

Mail coupon today for actual case histories on Recordak toll billing system . . . also free folder on the trim RECORDAK Portable microfilmer (illustrated) which lets you microfilm up to 90 toll tickets a minute.

RECORDAK®

(Subsidiary of Eastman Kodak Company)

originator of modern microfilming

—now in its 34th year

IN CANADA contact
Recordak of Canada Ltd., Toronto

MAIL COUPON TODAY

AA-3

RECORDAK CORPORATION, 415 Madison Ave., N. Y. 17, N. Y.

Please furnish case histories on RECORDAK Toll Billing System. Also folder on the new RECORDAK Portable microfilmer.

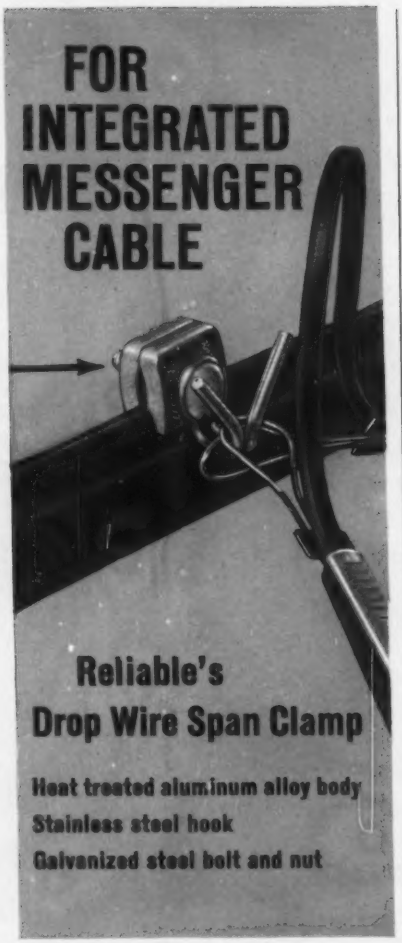
Name_____

Position_____

Company_____

Street_____

City_____ State_____



The No. 5577 Drop Wire Span Clamp is engineered for all Integrated Messenger Cables. A specially designed groove in the clamp protects the polyethylene web while providing a secure grip over the messenger jacket. It accepts 1 to 3 mid-span drops under full tension (plus wind and ice loading). Take-offs can be made at any angle. The square shank bolt, with nut, tightens securely with a wrench.

SEND *for your sample today.*

Reliable

A Symbol of Integrity Since 1909

ELECTRIC COMPANY

Franklin Park, Illinois

just to a lower level the Rhode Island intrastate toll rates which are presently above the level of interstate toll rates for comparable distances."

NET&T, projecting wage increases that went into effect late in 1961, has estimated that its rate of return on its intrastate plant in Rhode Island now stands at 6.18 per cent for a full year. The utilities division, in its last rate increase order in 1958, allowed the company a 6.23 per cent rate of return.

General of SW Gets Rate Approval at Texas Exchange

General Telephone Co. of the Southwest has been granted a rate increase at its Barnhart, Tex. exchange effective Feb. 21. Barnhart provides dial service to 67 stations. Old and new rates follow:

	Old	*New*
One-party business	$8.50	$9.50
Two-party business	7.25	8.25
One-party residence	4.75	5.25
Two-party residence	3.75	4.00

Authorize Sale in Minn.

The Minnesota Railroad & Warehouse Commission on Mar. 8 approved the sale of the poles, pole line, wire and rights of way of the Thomson Township Telephone Co., a switched company, to the Northwestern Bell Telephone Co. The Thomson company serves 700 stations. Rural rates authorized for Northwestern Bell's Cloquet exchange will apply to Thomson subscribers.

Seek Rate Raise in Ind.

The Monrovia Telephone Co., Tipton, on Feb. 23 asked the Indiana Public Service Commission for approval of a rate increase.

Ask to Change Name in Wash.

The Washington Utilities, Inc., Quilcene, has filed a petition asking to change its name to National Utilities, Inc.

Obituary

PAUL E. ROGERS, 53, vice president of the Cato & Meridian Telephone Co., Cato, N. Y., died on Mar. 5 at his home in Lysander, N. Y., following a short illness.

Born in Habbibal Center, Mr. Rogers was a member of the New York State Telephone Association, as well as of various local civic groups.

Besides the widow, Ruth Thorne Rogers, survivors include two sons, Charles T. of Covington, O. and Donald W. of Lysander; a sister, Mrs. Frederick Blake of Bowens Corners, N. Y.; two brothers, Donald A. of Morristown, N. J. and C. Ellis of Martville, N. Y. and two grandchildren.

TRAFFIC PAGE

Continued from page 30

culagraph, and as soon as conversation is begun, close key and stamp ticket as overlap.

(8) On a paid station call from a non-coin telephone, when the called number is dialed direct, after audible ringing is heard, close the key, and proceed with other work if the calling party is holding the line.

(9) Overlap in referring matters to the service assistant, and refer matters to the service assistant *only* when you cannot handle them or when instructed to do so.

(10) *Speed of Service* and *Speed of Answers* depend upon your *Speed of Movement.*

Be alert and at all times move swiftly to give good courteous service to your customers. Remember Courtesy, Accuracy and Speed are deserved by our customers, and you can see that they receive it.

TRAFFIC QUIZ

(1) Q. If two or more places are given to try for the called party at the time the call is placed, how should they be shown on the ticket (non-Mark Sense)?

A. Enter the first in the "To Pl." space and the others in the space for reports.

(2) Q. If numbers or addresses in different places are given, where should they be entered on the ticket (non-Mark Sense)?

A. Enter the number given for the first place in the "To No." space, or the address in the "Address Name" space. After each place name shown in space for reports, enter the related number or address name.

(3) Q. Should each number be entered in the "To No." space, as it is tried?

A. No. Enter only the first number tried, and the number talked to, if it is a different one. Line through the first number, being sure that only one number is left in the "To No." space.

(4) Q. Should the calling name be entered on a regular call?

A. Enter the calling name, or firm name, only if volunteered.

(5) Q. Is there an entry made on the ticket when requested to withhold the calling details?

A. Yes. Enter "do not announce clg. pl." or "do not give clg. pty's name" in the "Spec. Inst." space.

Steele, Chairman; Danielson, President; United of Ind.

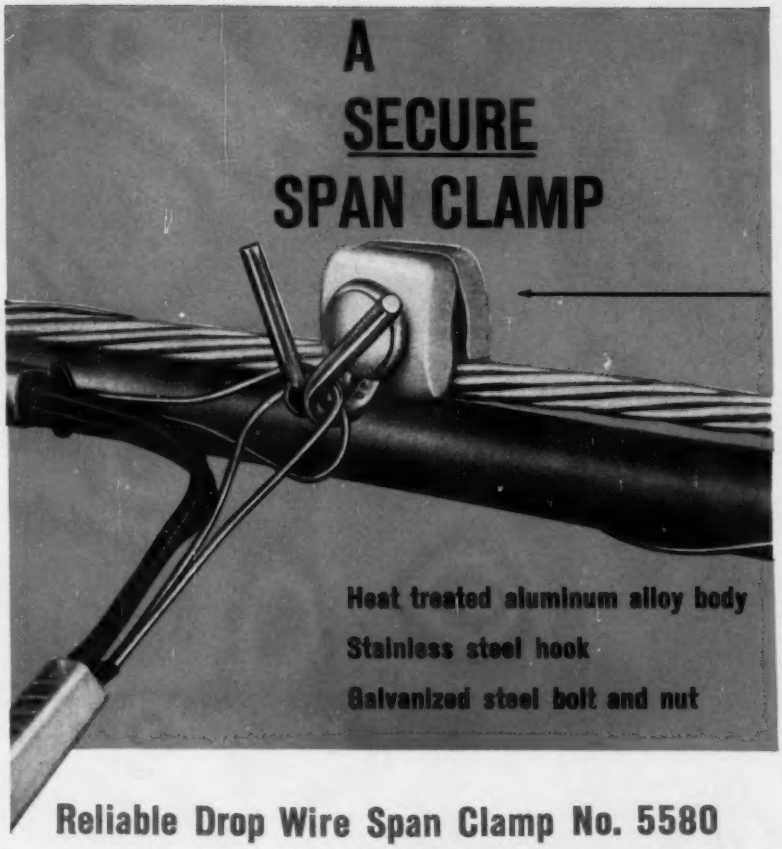
George A. Steele has been elected by the board of directors of the United Telephone Co. of Indiana, Inc., Warsaw, as chairman of the board. He is succeeded as president by Ted A. Danielson, who has been vice president and secretary-treasurer since 1959.

G. A. STEELE

In addition to functioning as chairman of the board, Mr. Steele will be engaged in specialized activities and continuing consultation. He has served as president for the past two years, and prior to that was vice president and general manager. He had also been vice president and secretary treasurer for a number of years, and has also served as general traffic superinten-

T. A. DANIELSON

dent. He joined United of Indiana in 1932. A 33-year industry veteran, Mr. Steele began his telephone career in Abilene, Kan.



Reliable Drop Wire Span Clamp No. 5580 for 1/4" to 7/16" strand

Accommodates 1 to 3 mid-span drops under full tension (plus wind & ice loading). The stainless steel "Y" shaped hook will take several drop wire clamps. Take-offs can be made at any angle. The square shank bolt, with nut, tightens securely with a wrench.

Send for your sample now.

Reliable
ELECTRIC COMPANY
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A Symbol of Integrity Since 1909

DATE_____

Please send me a sample Span Clamp

NAME_____

COMPANY_____ POSITION_____

STREET_____

CITY_____ ZONE____ STATE_____

Mr. Danielson also began telephone work in Abilene, joining United as an accountant in 1924. In 1931, as auditor, he was transferred by the company to their Indiana organization.

Harry Clingenpeel, general commercial superintendent, was re-elected as vice president. He continues in the superintendent's post, which position he has held since 1934. He joined United as an accountant in 1930.

Jack Cluen, general traffic superintendent, since 1952 was also named a vice president. He began his career with United in 1937.

Messrs. Steele, Danielson, Clingenpeel and Cluen will continue as members of the Indiana company's board of directors. C. H. Burris, recently named general superintendent of plant also continues as a director and F. F. Stevenson, who recently became chief central office equipment engineer, was made a new board member.

In other personnel changes, L. R. Stoops, who had been purchasing agent, was made secretary-treasurer. Dale Graham, formerly building supervisor, suceeds Mr. Stoops as purchasing agent. Estelle W. Lynch was appointed assistant secretary and assistant treasurer.

New Orleans C. of C. Gives Award to SBT&T's Bartee

Homer G. Bartee, vice president and general manager of Southern Bell Telephone & Telegraph Co. in Louisiana, on Feb. 22 was presented the 1962 "Distinguished Salesman At Large" award of the sales and marketing executives of the New Orleans Area Chamber of Commerce.

The award was presented by award committee chairman, Charles Prechter, who cited Mr. Bartee for his "outstanding leadership in the community, his acomplishments as a leading citizen of New Orleans, and the high respect in which he is held in the community."

Evaluation

"The plight of the unemployed American, although not a happy one by American standards, is Utopian compared with that of the Russian who is unemployed. . . . Wages paid Russian workers in 1959-60 averaged about four rubles per hour of labor, the equivalent of $80 per month at the rate of exchange at that time, according to latest international labor data. . . . Remembering that all necessities of life are by far cheaper in the United States, even the unemployed person in this country is about as well off as the full-time employed average Russian worker."—*Liberal, Kan., Daily Times.*

REA Approves Five Loans

The Rural Electrification Administration has approved loans totaling $3,728,000 to telephone systems in five states as follows:

Chariton Valley Telephone Corp., Bucklin, Mo.; $550,000; Feb. 26.

The company plans to use this loan to help improve service for 494 subscribers and furnish initial service to 152 subscribers, and to acquire the Hale Telephone Exchange, and the Forest Green Telephone Co., now serving subscribers who will get improved service. The acquired facilities consist of magneto exchanges at Hale and Forest Green.

Chariton Valley proposes to replace the two acquired magneto switchboards with new dial central offices. A portion of the loan will also be used to complete the authorized system.

REA loans to this borrower will help make possible new and improved service to 6,144 subscribers.

•

The Golden Belt Telephone Association, La Crosse, Kan.; $677,000; Feb. 28.

These funds will assist in improving service for 673 subscribers and furnishing initial service to 200 subscribers. The borrower plans to acquire the Otis Telephone Co., now serving 216 of the subscribers who will receive improved service. The association will be reimbursed for this acquisition. In addition, it proposes to acquire the following small companies, at a nominal cost, which serve the remaining subscribers who will get better service:

Arnold Farmers Mutual Telephone Co.;

Brownell Central Telephone Co.; and the Farmers Mutual Telephone Co., Ransom.

New dial central offices are planned at Brownell, Otis and Ransom.

Loans to this borrower will assist it to make possible new and improved service to 2,667 subscribers.

•

Yadkin Valley Telephone Membership Corp., Yadkinville, N. C.; $1,421,000; Feb. 28.

With these funds, Yadkin Valley will be helped to furnish initial service to 2,062 subscribers in the present service area. In order to provide the additional service, the borrower plans the following new construction and improvements:

To create a new exchange at Advance and construct a dial office there.

To replace the present Harmony central office with a new dial office.

To enlarge the Brooks Cross Roads, Forbush, and Smithgrove central offices.

To install facilities to improve service for the existing subscribers.

Loans to the North Carolina borrower will enable it to bring new and improved service to 6,294 subscribers.

•

Pond Branch Telephone Co., Inc., Gilbert, S. C., $820,000; Feb. 28.

These funds will assist the Pond Branch Company to improve service for its 478 subscribers and provide new service for 824 additional subscribers. The new borrower, a commercial corporation, furnishes magneto service through its Pond Branch exchange.

The company proposes to serve the expanded system through three new dial central offices to be constructed at Gilbert, Pelion and Pond Branch. Commercial office facilities will be leased, for the present.

Ernest F. Smith is both president and manager of the Pond Branch Telephone Co.

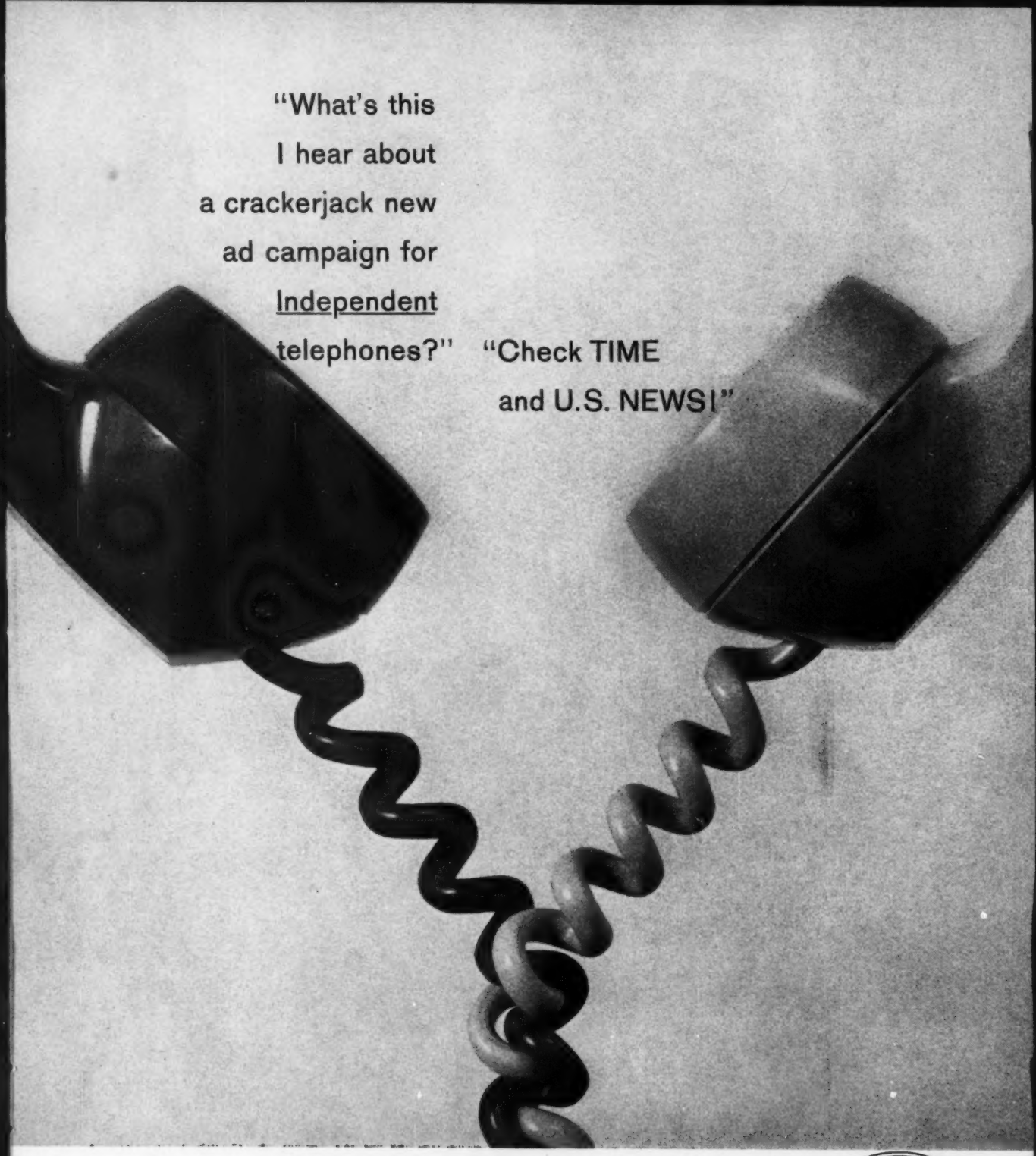
•

Wilson County Telephone Co., Floresville, Tex.; $260,000; Feb. 28.

The company intends to use the loan funds to improve service for 97 subscribers and furnish initial service to 93 subscribers. Wilson County has recently acquired the Sutherland Springs exchange from the Lone Star Telephone Co.

A new and larger dial office is planned to replace the present Sutherland Springs central office, and provision has also been made in the loan for the purchase of a building in Floresville for commercial office use.

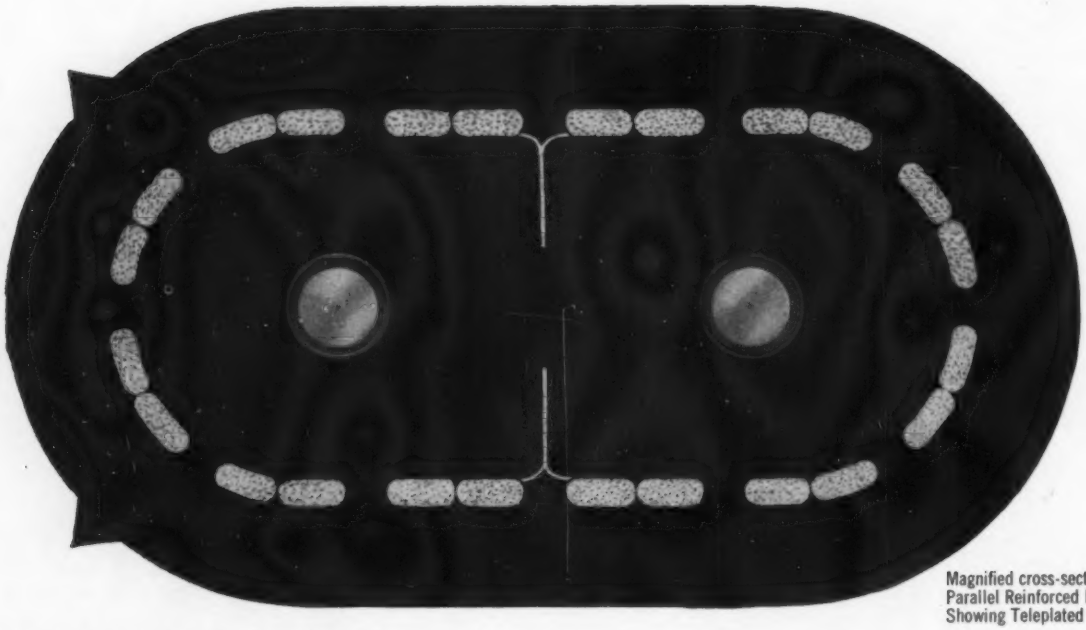
REA loans to this borrower will assist it to provide new and improved service to 2,331 subscribers. Four of the proposed five exchanges of the system now furnish dial service to approximately 1,880 subscribers.



Check U. S. NEWS March 12. Check TIME March 23. Seven more ads to come (a total of 9) so check 'em both regularly throughout 1962. There's a mince-no-words, get-to-the-heart-of-the-matter approach in USITA advertising this year. And it's all about you! Want your company to share this and many other rewards of USITA membership? Let us tell you how! Write: U. S. Independent Telephone Association, 438 Pennsylvania Building, Washington 4, D. C.

UNITED STATES INDEPENDENT TELEPHONE ASSOCIATION

WIRELIABILITY *



Magnified cross-section of
Parallel Reinforced Drop Wire
Showing Teleplated Conductors

TELEPLATE GIVES TELEPRENE UNEXCELLED CORROSION BARRIER AND INSULATION ADHESION

Whitney Blake is the source for Teleplate for the Independent Telephone Industry

TELEPLATE, is a plating of lead and brass on the conductor surface which prevents oxidation — corrosion — of the insulation, materially increasing wire life. And TELEPLATE performs a second important function. Its high adhesion properties give the highest possible conductor-insulation bond — crushing strength is increased; accurate stripping is made easy and insulation separation in supporting clamps is prevented. Years of field-application of TELEPLATE Drop Wire have proved that it's built — and performs — with the greatest possible dependability and economy. Ask about it.

*Your assurance of quality wire and cable performance — Today and Tomorrow — A product of Whitney Blake WiResearch.

WB WHITNEY BLAKE CO.

New Haven 14, Connecticut Telephone Area Code 203 Chestnut 8-5515 TWX NH84

TELEPHONE
PRODUCTS OF
WHITNEY BLAKE
WIRESEARCH

TELEPRENE

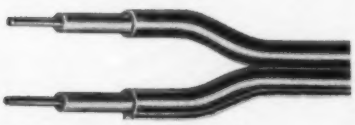
All Whitney Blake Teleprene Drop Wires are Teleplated to provide permanent adhesion so necessary to long-life service.

PARALLEL

Rubber-insulated conductors are jacketed with long-wearing Neoprene.

REINFORCED PARALLEL

Rubber-insulated conductors have a tough textile wind between the insulation and Neoprene jacket to increase strength and durability.



TWIN PARALLEL

Rubber insulated conductors are jacketed with Neoprene in a figure 8 shape.

TWISTED PAIR

Two individual conductors, rubber insulated and Neoprene jacketed, then twisted together.

WRITE for any of the new Whitney Blake bulletins:
T-5 . . . TELECABLE
T-6 . . . Telephone Wire and Cable
T-8 . . . Figure 8 Distribution Wire

General of Fla. Names Jones, Buckingham to New Posts

J. Hartwell Jones has been promoted to assistant to the president of General Telephone Co. of Florida, according to an announcement by Fred D. Learey, president.

J. H. JONES

Mr. Jones, who has served in various capacities during his many years with the Florida company, has been director of public relations since 1950. In 1932 he founded the company's well-known miniature newspaper bill insert, the *Sun Dial*, and continued as its editor for 25 years.

R. W. BUCKINGHAM

He has been active in national telephone affairs, having served as a member of the USITA Advertising Committee for 13 years, and as chairman of the group from 1950 to 1954.

In addition to many local civic activities, Mr. Jones is a former vice president of the Florida Junior Chamber of Commerce and a past district governor of the Advertising Federation of America.

Mr. Learey announced that Mr. Jones would be succeeded as director of public relations by R. W. Buckingham who has worked in the company's public relations department for the past six years.

Mr. Buckingham is a native of North Dakota, a graduate of the University of North Dakota, and a Navy veteran of World War II. He did daily newspaper writing in Grand Forks, N. C., and New York, and radio news announcing and directing in New York and Florida, before joining General of Florida as editor of the company's employe magazine in 1956.

In 1958 Mr. Buckingham was named publicity assistant. He became public relations assistant in 1959 and assistant director of public relations in November, 1961. He also edited the company's bill insert publication, the Sun Dial, from 1956 to 1958.

Commonwealth Countries to Hold Conference on Satellites

Representatives of Commonwealth Administrations are to hold a special conference in London at the end of March to discuss the problems associated with the use of satellites and their potentialities for Commonwealth telecommunications, it was announced on Mar. 2 in the House of Commons by the British Postmaster General, Reginald Bevins, M.P.

The conference, which will last two to three weeks, will prepare a report for consideration by Commonwealth governments.

The director general of the British Post Office, Sir Ronald German, C.M.G., will be the chairman, and Sir Robert Harvey, K.B.E., C.B., will be the leader of the U.K. delegation. The secretary to the conference will be W. Stubbs, who is secretary general of the Commonwealth Telecommunications Board.

The countries which have accepted invitations are: Australia, Canada, Ceylon, Ghana, India, New Zealand, Nigeria, Pakistan, the Federation of Rhodesia and Nyasaland and Sierra Leone. Cyprus, the Federation of Malaya and Tanganyika will not be sending delegates.

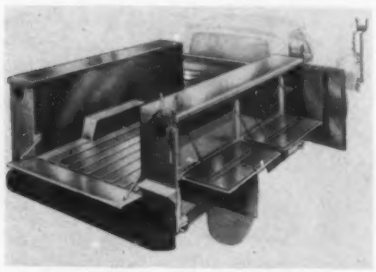
True Worth

"Humility is to make a right estimate of one's self."—SPURGEON.

News on New Products

SERVICE AND MAINTENANCE BODIES—Utility Body Co. says that its new UB series service and maintenance bodies convert ordinary pick-up trucks into service vehicles.

Three body designs are available, fitting any one-half, three-quarter or



one-ton chassis. Each contains 15-inch wide compartments, with shelves, bins and adjustable trays, according to the manufacturer.

Each unit is reported to be fabricated of heavy gauge steel, with a special die-formed corrugated floor.

Among other features stressed by Utility Body are:

Full 48⅜- inch bed width.

Drainage outlets in floor.

Right side compartments contain dividers adjustable on 2-inch centers.

Material shelf with 1-inch rolled lip to keep parts from rolling off.

Special warning when doors are not securely closed.

Request NP1844.

•

ELECTRICAL INSULATING TAPE—The successful application of chemically cross-linked polyethylene-based material to electrical insulating tape has been announced by Harmon Gillman, vice president for research and development of Bishop Mfg. Corp.

Self-bonding action causes the tape to fuse into a solid homogeneous mass of insulation, which Bishop states, affords permanent electrical and watertight sealing. The company reports every roll of its Type 2A electrical tape now manufactured is of what it describes as the tougher, mechanically stronger, cross-linked type, and remains self-bonding.

According to Mr. Gillman, the improved Bi-Seal tape meets a military specification (MIL-I-3825), for self-fusing, polyethylene-based electrical insulating tape intended for use in communications, electronic, and allied equipment. Request NP1845.

•

BITS FOR IMPACT WRENCHES—Bits for impact wrenches with 7/16 inch hex adapters have been added to their line of No. 159-W10 bits for 5/8 inch hex adapters, according to announcement by the Greenlee Tool

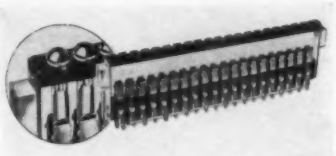
Co. The new type is designated No. 159-W7. Both models are available in 8, 12 and 16 inch twist lengths.

In all, 14 standard sizes are stocked for boring holes ranging from 3/8 inch to 1-7/16 inches in diameter. Request NP1846.

•

TELE-STRIPS—Dialight Corp. reports that its Dialco Tele-Strips are designed for installation on switchboards and other equipment which requires multiple indicator lights with T-2 lamps as the light source.

Tele-Strips are available in a wide choice of styles, and in sizes accommodating from two to 20 Dialco lampholders per strip. Shown is Dialco's No. TS 4220S Tele-Strip, which accommodates 20 Dialco No. 420-series lens cap assemblies.



Tele-Strips are available with a choice of several styles of Dialco lens cap assemblies and lens colors, or for use with customer's own designation cards. They may be easily mounted or replaced from the rear of the panel, Dialco says, by means of standard telephone-type retaining clips used, in conjunction with mounting bars, on the unit itself. The lens cap assemblies and lamps are removable from the front of the panel by means of standard telephone-type lamp extractors.

In addition to several types of Tele-Strips which are in general use, Dialco states it can supply Tele-Strips in any desired configuration—to accommodate any number of lampholders on specified centers; with lens cap assemblies, or for use with customer's designation cards; with or without terminals commoned; with metal parts plated to a specified finish.

Tele-Strips are reported to accommodate the T-2 bulb with telephone

TELEPHONY PUBLISHING CORP.
608 S. Dearborn St.
Chicago 5, Ill.

Please have the manufacturer send me without obligation the literature indicated by the following numbers:

NP1844_____; NP1845_____; NP1846_____; NP1847_____;

NP1848_____; NP1849_____; NP1850_____; NP1851_____;

NP1852_____; NP1853_____.

Name .....

Company .....

Street .....

Town and State .....

3/17/62

"Airdropped" by helicopter over rough Alaskan terrain...

Polyethylene insulated-jacketed cable shrugs off punishment!

In Ketchikan, Alaska, the countryside gets rugged—so rough that Ketchikan Public Utilities found it impossible to use conventional methods in laying telephone cable to a remote power station.

Their unique solution: "Airdropping," by helicopter, over 4 miles of 18 pair Figure 8 cable insulated and jacketed with tough BAKELITE polyethylene.

Cable laying took only 6-½ hours. And, despite the extreme "shock treatment," the cable, made by Brand-Rex Division of American Enka, Concord, Mass., came through with singles and jacketing uncrushed and unharmed. Once laid, the cable was installed on existing power poles.

BAKELITE polyethylene was the logical choice for this unusual installation because it is designed to withstand such abusive handling and, once installed, provides excellent resistance to moisture and cracking for reliable service. An excellent low-loss dielectric, BAKELITE polyethylene makes possible cable with lower capacitance unbalances, reducing cross-talk and noise level.

Want more information about the advantages of polyethylene insulated-jacketed telephone cables? Write Dept. MD-139C, Union Carbide Plastics Company, Division of Union Carbide Corporation, 270 Park Ave., New York 17, N.Y. *In Canada:* Union Carbide Canada Limited, Toronto 12.

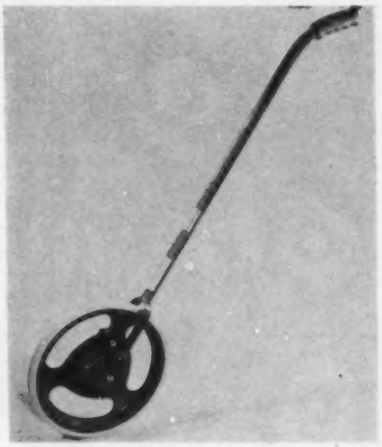
UNION CARBIDE **PLASTICS**

BAKELITE and UNION CARBIDE are registered trade marks of Union Carbide Corp.

slide base in a wide selection of voltages ranging from 6 to 60 v. Request NP1847.

•

MEASURE METER—Extra-long measurements can be made by one man, B. G. Reilly Co. states, with the aid of its Wheel-N-Measure meter.



The meter, which gives accurate measurements, is operated by walking it along and running off the distance. The measurement can be read in feet on the counter. It registers up to 9,999 feet.

Weighing only 6 pounds, the meter has a Veeder Root precision counter.

To reset it, the operator twists to zero, according to the Reilly company.

The wheel is cast aluminum and has a 36-inch circumference and a bronze oilite bearing.

A special rubber tire is claimed to prevent slippage and is suitable for smooth or rough terrain.

The handle is tubular with a soft rubber grip. Request NP1848.

•

MEASURING TAPES—Also available from the B. G. Reilly Co. are

metallic and non-metallic linen measuring tapes.

The metallic has eight fine-gauge copper wires woven into the linen; the non-metallic type is all linen.

Both types, Reilly says, come in solid leather cases with a precision rewind mechanism of polished brass.

Both are plastic coated, making them waterproof and easier to clean and wipe dry. The coating also protects the markings permanently against wear and scuffing, Reilly reports.

The tapes come in 50, 75, 100, 150 and 200-foot sizes. Refills are available.

They are graduated in tenths and half tenths of feet, feet, inches and quarter inches.

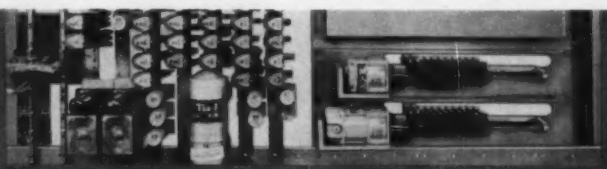
The first three feet of both types are reinforced with plastic to help prevent wear and tear where the drag is greatest.

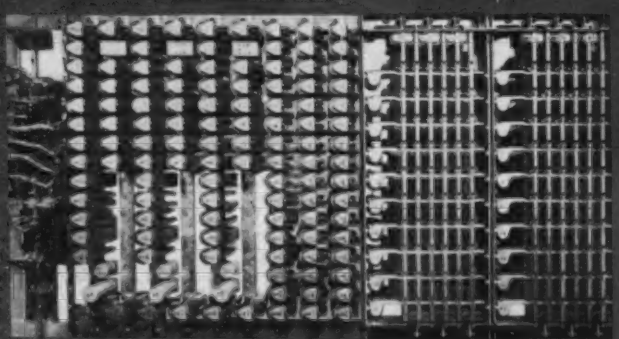
The metallic tape has red reinforcement to differentiate it from non-metallic, which has a green reinforcement on the tongue. This is a safeguard where there is danger of contact with electrical wiring. Request NP1849.

•

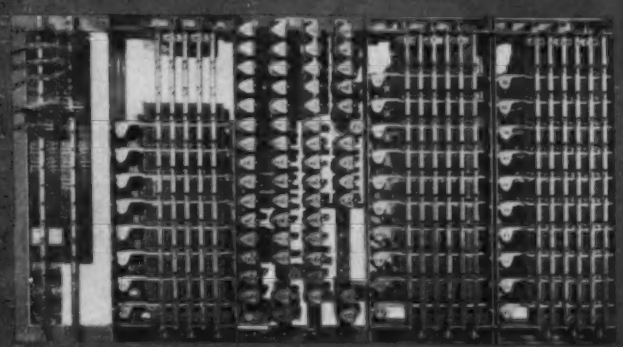
TELEPHONE STATION BLOCKS—Telephone station blocks, for use with flat conductor, adhesive-backed inside station wire, are now available from The Thomas & Betts Co.

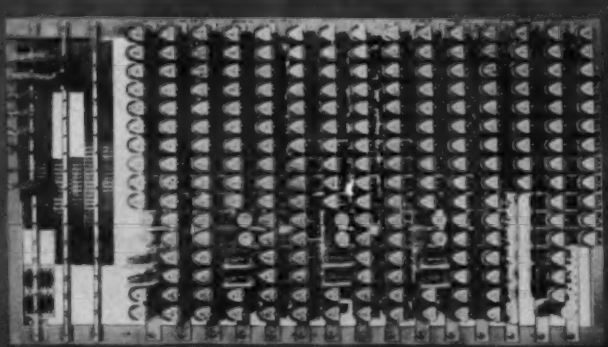
NORTH ELECTRIC
VISIONEERING ACHIEVEMENT
SINCE 1884 . . . INTO THE FUTURE





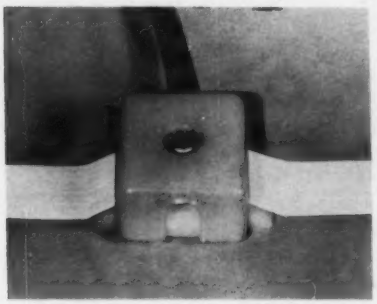
THE TELEPHONE SYSTEM WITH "SAVOIR FAIRE"!





The company states they are designed for connecting flat conductor cable to either station wire or line cord.

Installation of these blocks is described as simple and fast and consists of five steps:



(1) Mount base plate with two screws.

(2) Place the flat, adhesive-backed conductors over the base plate.

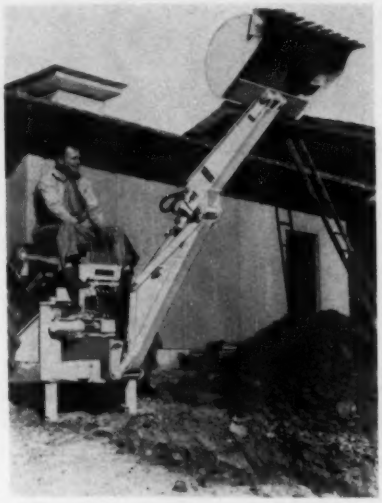
(3) Slide terminal block over base, automatically locking it in position.

(4) Tighten screws specially designed to pierce insulation of flat conductor cable, and connect to line cord leads.

(5) Place line cord strain relief in block recess and fasten cover with single captive screw. Request NP1850.

•

COMPACT BACKHOE—A new compact backhoe described as having 10,000 pounds-plus pryout pressure and and designed to handle 90 percent of

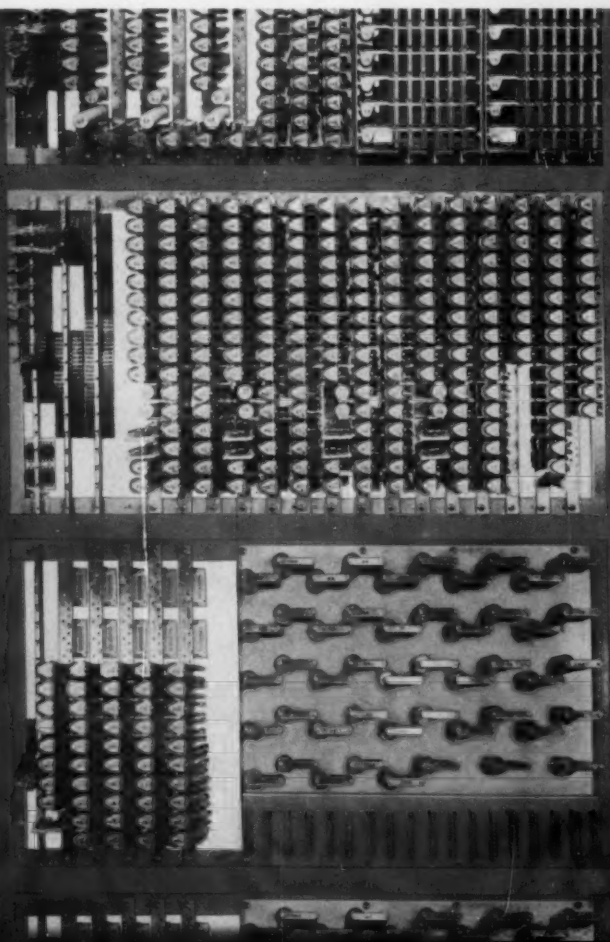


all utility backhoe work has been introduced by Davis Mfg. Inc.

The unit, designated the Davis Model D-100, will dig 8 feet 4 inches deep. It has a wide choice of buckets ranging from 12 inches wide to 36 inches wide. Davis says that it is offered for operators whose work falls into this range, but who don't want to sacrifice the performance characteristics of larger machines. According to the manufacturer, a careful analysis of the work a backhoe is used for revealed that less than 10 per cent of the users actually require depths greater than 8 feet.

A two-in-one swing cylinder with horizontal movement has a heat-treated rack geared to a pinion in the mast. This is reported to provide a full 180 degree continuous operating arc with a constant speed throughout its cycle. A specially designed valve has built-in cartridges pre-set at 2,000 psi for the main hydraulic system. The boom and crowd cylinders have 3,000 psi overload relief settings. Controls operate independently of each other but can be manipulated simultaneously.

The Davis D-100 is available as a companion to the Davis T-78 Trencher to make an all-purpose digging machine, and it also is said to fit popular models of utility tractors. It can be



NORTH ELECTRIC NX-2
MODULAR CROSSBAR

. . . has the ability to say and do the right thing at the right time . . . and at the right price and delivery date, too.

Advanced modular design gives you proven greater efficiency, flexibility and economy through pre-tested, standardized "off-the-shelf" cross-connect cables, circuitry and component modules.

What's more—you can be sure of reasonable prices for future additions.

Send for New NX-2 Brochure From The Dynamic Force In The Telephone Industry.

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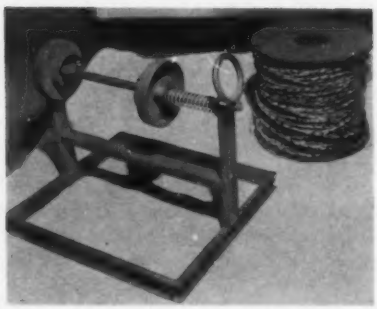
plumbed to any hydraulic loader system. It is compact enough to go through standard yard gates.

It doesn't require a big power plant; consequently even light-duty tractors can provide sufficient power, Davis claims. It can be detached in less than five minutes. The unit is ideal for operators who operate numerous attachments from their utility tractors. The unit's removability enables a tractor to be used for other work such as mowing and terracing.

The boom, dipper stick, and crowd cylinders are interchangeable with each other. Request NP1851.

•

SMALL REEL STAND—The Welding Service Co. announced that it has produced a small reel stand designed for use by installers in dispensing wire from non-returnable reels.



The company lists the following features of the stand:

(1) Weight, 7 pounds.

(2) Equipped with spring tension so that the reel can feed evenly without galloping.

(3) The core adapters can be reversed to accommodate either 2-¾ inches or 4-inch core diameters.

(4) A bar under the reel, spaced close enough to the flanges to prevent wire spilling over the sides.

(5) The reel itself is loaded on its side.

The weight of the wire and reel compresses the spring so that the installer is not required to force the reel in place to load, according to the manufacturer.

This unit is equipped with a unique locking method requiring no pins, bolts, or set collars to hold the reel in place. Once the reel is loaded, Welding Service states, the unit can be picked up in any manner without having the assembly come apart. Request NP1852.

•

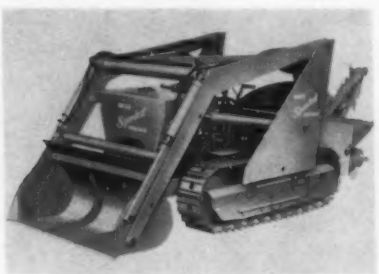
CRAWLER-TRACTOR—Mead Specialties Co. announces the availability of its Speedcat crawler-tractor, which, it reports, trenches as well as excavates, backfills and loads.

Both highlift and lowlift models are available. The highlift loader, Mead says, will load trucks up to 7 feet, 3 inches, and will excavate, grade and backfill. Except for loading, the lowlift bulldozer will perform the same tasks as a highlift, plus high-speed trench backfilling at speeds up to 4 mph.

Lowlift bulldozer with trencher.

The trencher has been designed, the manufacturer states, to absorb vibration, due to subsurface rocks, without transmitting it to the tractor and operator.

A special hydraulic track driving motor offers adjustment of forward cutting speeds exactly to fit constantly changing digging conditions.



Highlift loader with trencher.

Suitable specifically, Mead reports, for small-to-medium excavating and backfilling jobs, the Speedcat's crawler traction allows the operator to trench in loose or slippery ground.

All fluid and mechanical controls including the electric starting switches are easily reached from the padded bucket seat.

The machine can be transformed, by a lever movement, from a fluid drive to a direct-gear drive with six speeds forward and two reverse.

Maximum drawbar pull is 2000 pounds. Trench depth is a maximum of 5 feet.

Slightly over one yard wide, the Speedcat, according to Mead, works efficiently in limited areas usually found between buildings, within foundations, under floors and in narrow trenches.

It is reported to use about 3½ gallons of gasoline during a normal 8-hour working day. Request NP1853.

USITA Names H. H. Butler Head of Government Relations

The appointment of H. H. Butler, veteran Independent telephone executive, as director-government relations of the United States Independent Telephone Association, has been announced by Clyde S. Bailey, USITA executive vice president.

Col. H. H. BUTLER

Mr. Butler was formerly vice president and general manager of Commonwealth Telephone Co. of Dallas, Pa.

Mr. Butler was graduated from Washington and Lee University, summa cum laude, and took further study at Johns Hopkins University.

He started his telephone career at the Chesapeake & Potomac Telephone Co. in Baltimore, Md., in 1933 as assistant manager, later becoming local manager and then district commercial supervisor.

In 1941 he entered the military service and in 1944 was chief, military personnel branch, Office of the Chief Signal Officer. Later he was assistant chief, coordination and planning, of the Veterans Administration.

From 1946-1948, he was general manager of the Illinois Telephone Co., Bloomington, Ill., and served as president of the company for three years before resigning to become vice-president and general manager of Commonwealth Telephone Co. in 1953.

Rough Road to Accomplishment

"Life has no smooth road for any of us; and in the bracing atmosphere of a high aim, the very roughness only stimulates the climber to steadier and steadier steps, till that legend of the rough places fulfills itself at last, '*per aspera ad astra*,' over steep ways to the stars."—BISHOP W. C. DOANE.

Wisconsin Telephone Cites Woman as "Salesman of Year"

For the first time in its history, the Wisconsin (Bell) Telephone Co., selected a woman as its "Salesman of The Year". She is Mrs. Jean Roche, a business telephone canvasser in Milwaukee. She received her award at the annual meeting of the company's marketing department on Feb. 14.

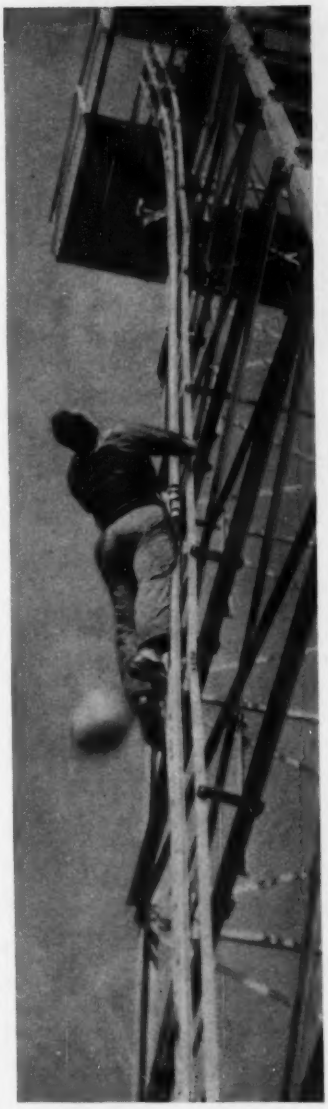
Mrs. Roche celebrated her third anniversary with the Wisconsin company on Feb. 27. During her three-year's service, she has been selected as "Sales Woman of the Year" each year. This year, in addition, she was chosen for the top award out of nominees from each of the department's six sales divisions.

In 1961, Mrs. Roche accounted for over $70,000 in added annual revenue in all types of services. Most of her selling is done via telephone to one-line business customers in the metropolitan Milwaukee area. Other sales are made on premises visits. Last year, she averaged one sale for every two customer contacts.

Even after three years, Mrs. Roche hasn't been able to analyze her successful sales technique. "My secret of success? I wish I knew," she said. "I just try to be friendly, offer whatever suggestions I can, and listen to what the customers have to say."

Meaning of Equality

"If we hope to **export** more democracy we are going to have to *produce* more democracy," notes Supreme Court Justice TOM C. CLARK. Speaking of men's equality in the Declaration of Independence, he continues: "It does not say *some* men—or *most* men—but *all* men. When we do not give full recognition to that fact, we can be certain that the Communists capitalize upon it throughout the world."—from *Quotable Quotes*, in Northwestern Bell Telephone *News*.



WITHIN 6 INCHES AND A SPLIT SECOND—

SAF-T-CLIMB*

PREVENTS A TRAGEDY!

SAF-T-CLIMB's *positive* locking process *instantly* saves a man from serious injury or death when sudden sickness...a hot line...fatigue...grease...or inexperience causes a slip or fall. Here's the ultimate in ladder climbing protection for your workers!

SAF-T-CLIMB does *not* depend on friction or a man's ability to think fast. He's saved before he even has a chance to think! On rung ladders, peg steps on poles or tower legs—*even on tower framework where no ladder exists*—the *most* a climber can fall is only 6 inches.

SAF-T-CLIMB provides unique advantages—a man can climb with one or *both* hands free for tools or work. He climbs smoothly up or down, has more security and confidence, less physical and nervous fatigue. *You* get more productive work. Installation is very easy...special skills and equipment are not required.

* *Previously called "Notch-Lock"*

SAF-T-NOTCH RAIL Attaches easily to any type structure. Hot-dip galvanized steel. Notches every 6 inches provide positive stop and lock points. Can be pre-curved to your specs. Also available in stainless steel or aluminum.

SAF-T-LOK SLEEVE Glides freely up and down the Saf-T-Notch Rail in normal climbing position. Locks instantly and automatically in a notch if climber slips or falls. Weighs less than 4 lbs.

SAF-T-BELT Passes 250 lb. drop test. Comfortable and light and meets all military specifications.

FREE ILLUSTRATED BROCHURE NO. 50, AVAILABLE UPON REQUEST

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TELEPHONE COMMUNICATIONS SYSTEMS

RFL Voice & Data Communication TERMINALS

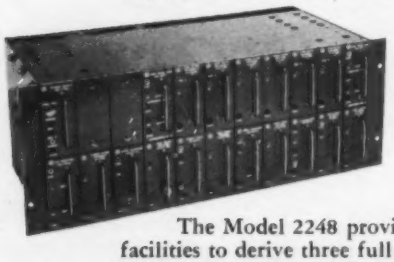
Transistorized Terminals for Voice and Data Communications featuring Modular Design for Custom Appearance and Maximum Flexibility.

MODEL 1874

FM Voice Multiplex Terminal

The Model 1874 FM Voice Multiplex Terminal will provide for voice transmission and reception on a 4-wire carrier basis for radio microwave, cable or open wire transmission. One voice channel requires a terminal at each end of the communication medium. Up to twenty channels may be multiplexed. Frequency modulated carriers are employed, multiplexed by frequency division and occupying a frequency spectrum from 32 kilocycles to 272 kilocycles. The channel carrier frequencies start at 38 kilocycles and are spaced at 12-kilocycle intervals. The circuits in the terminals are designed to operate from a 48 volt battery source.

Two and four wire voice terminations are available and out of band E and M signaling is provided. All circuitry is mounted on plug-in etched circuit cards.



MODEL 2248

Voice & Data Transmission Terminal

The Model 2248 provides in one compact package all the facilities to derive three full duplex channels in the 0 to 12 KC spectrum for voice and data transmission.

Channel 1 provides voice facilities from 300 to 3000 cps for local order wire purposes; Channel 2 provides a band from 4300 to 7600 cps for the application of data tone signals. Channel 3 is a single sideband derived voice channel of 300 to 3000 cps. This channel is translated to the 9000 to 11,700 KC band. Out of band signalling tones are provided with this channel for E and M signalling. The Model 2248 is presently being used on many microwave systems for service channel applications.

SEND FOR TECH. DATA

For additional information, including application data, write or phone DE 4-3100. Demonstrations available by local representatives.

RFL IS REPRESENTED NATIONALLY by experienced Manufacturers Representatives. Write for the address of the RFL Representative nearest your location.

RFL Radio Frequency LABORATORIES, INC. Boonton, New Jersey, U.S.A. EST. 1922

Poultry Auction Networks Provided in Georgia, Texas

Poultry processors now can bid on chickens via bidding networks which are provided by telephone companies.

Two of the companies furnishing these services are Southern Bell Telephone & Telegraph Co. and the Southwestern Bell Telephone Co.

Demonstrating Southern Bell Telephone & Telegraph Co.'s poultry auction telephone network is Richard Waldrep (seated), Georgia Poultry Exchange auctioneer. Next to him is Congressman Phil Landrum who formally opened the network. Looking on are Southern Bell men, E. C. Gentle Jr. (left), general plant manager and Bill Mathews, central office foreman.

Southern Bell, working with Independent telephone companies in the areas involved has installed a network for the Georgia Poultry Exchange Inc. at Gainesville. It connects 30 processor-buyers in nine north Georgia and Alabama cities.

Cities involved are Athens, Gainesville, Winder, Commerce, Marietta, Atlanta, Carrollton and Cumming, Ga. and Heflin, Ala.

Controlling bidding and receiving operations are the consoles located at the Poultry Exchange Building in Gainesville. Here the auctioneer is in instant communication with the processors.

One hour before the auction starts each day, an employe of the Exchange calls each buyer on the network. This enables buyers to receive last minute information regarding condition, quality and location of the chickens which are to be auctioned that day.

Project Coordinator of the installation was Bill Mathews, central office foreman, Gainesville, Ga.

Southwestern Bell's system was in-

This equipment cabinet used in poultry auction network supplied by Southwestern Bell receives bids, memorizes and stores them for transmission to the autioneer's console. Making a final check are AT&T engineers Tom Paxton (left), and Elmer Broders.

stalled at the Southwest Poultry Exchange in Center, Tex.

Initially 20 buyers, representing 16 cities, were joined to the system. Each has a push-button telephone and speaker on his desk. The buyer listens to bidding on a desk speaker and bids by pressing a button on the set.

The auctioneer keeps track of the bidding by watching many small lamps on a master console unit. The high bid is confirmed by signaling back over the same circuit.

When the bidding is closed, the auctioneer turns a button cutting off the remaining bidders and confirms the high bid by voice conversation. He then contacts the seller to see if the bid is acceptable. If not, the lot of chickens is withdrawn for sale another day.

Prior to the installation of the telephone network, commercial radio time was used to broadcast daily auction bids to buyers in distant cities.

With this new system, out-of-town buyers can bid without making expensive visits to the auction floor. Sellers are enabled to market their poultry in cities where they bring the best prices.

The Southwestern Bell system was devised by Gene Smiley, manager at Center; Joe Davis, Austin, Tex., division service engineer; Joe Hammond of AT&T Long Lines' Houston, Tex. office; and Gene McNeely, Long Lines sales manager, Dallas, Texas.

We Never Catch Up

"The only ones you should try to get even with are those who have helped you."—Gerald K. Young in the Blakesburg (Ia.) *Excelsior*.

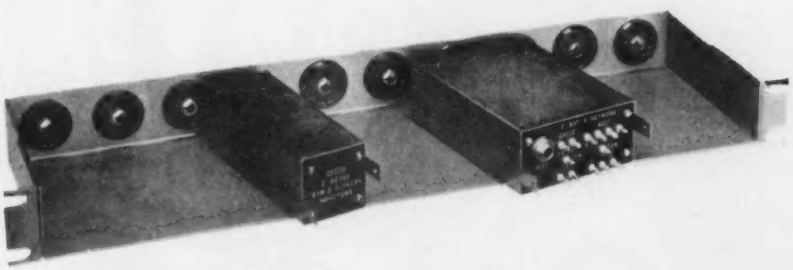
Now, available from stock!

CEECO

Impedance Compensators for T.W.X. Mechanization

C-1613A FOR NON LOADED CABLE

C-837A FOR LOADED CABLE



PLUG-IN FEATURE ALLOWS PRE-WIRING AND EXPANSION

10—C-601AI CASES (20—C-1613A UNITS)

OR 5—C-837A NETWORKS PLUG INTO A

1-¾" x 19" SHELF

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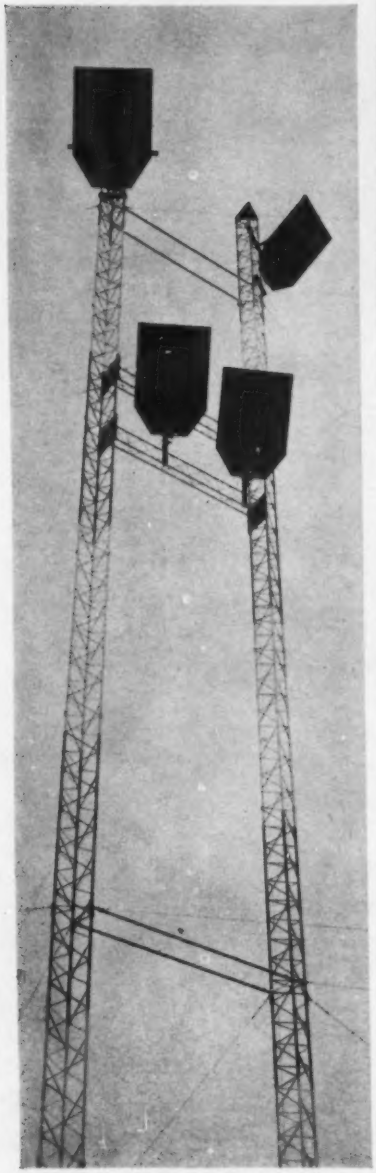
MICRO-WAVE TOWERS



For your micro-wave tower requirements, get the advantages of advanced design, superior workmanship, competent engineering assistance, and complete erection service.

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"Pioneer Manufacturers of Towers of All Kinds"

Nineteen telephone men attended the first transmission seminar of the Michigan Independent Telephone Association at Augusta, Mich. on Jan. 23 and 24. B. F. Robinson, chief engineer for General Telephone Co. of Michigan, is shown here outlining course material to the group.

Hold 2nd of 5 Transmission Seminars in Michigan

The second of five proposed transmission seminars sponsored by the Michigan Independent Telephone Association, attracted 21 representatives from 13 telephone companies to Pinconning on Feb. 21 and 22.

Purpose of the seminars, according to C. D. McLellan, executive vice president of MITA, is to provide smaller companies with technical background for solving some of the industry's transmission problems. The course covers much of the material in the 1961 *Notes on Distance Dialing,* or so-called "Blue Book".

The program for the seminars was developed by MITA's Transmission Committee following a survey of the Independent telephone companies in Michigan.

Bruce F. Robinson, chief engineer for General Telephone Co. of Michigan, is chairman of the committee. The other committee members are Jim Hoogesteger, Mesick Telephone Co., and William Schmidt, Shiawassee Telephone Co.

The first seminar was held at Augusta, Jan. 23 and 24. Instructors were Messers. Hoogesteger and Robinson and Harold Miller of General Telephone's engineering department.

Jack Knol and Glen Garrison of J & G Daverman Co. will serve as instructors during the remaining seminars, with Messrs. Robinson, Hoogesteger and Miller assisting. Mr. Schmidt serves as seminar moderator. The next class is scheduled for Apr. 12 and 13 at the Crystal Mountain Resort at Thompsonville. May 3 and 4 are the dates for the Upper Peninsula meeting which will be held at Wallace.

Those interested in attending may obtain a registration blank from the Michigan Independent Telephone Association, 550 Stoddard Building, Lansing 23, Mich.

Senator Cannon Pleads: Fill Engineer Manpower Gap

Nevada Sen. Howard W. Cannon said on Mar. 1 that Congress should use "every means at its disposal" to alert Americans to national dangers which would result from a failure to "step up our supply and improve our utilization of scientific and engineering manpower."

In a major statement on the floor of

Probe 'Neath Surface

"It is said that to be successful in American politics one must learn to shun logic and to acquire, instead, a consummate skill in sloganizing and posturing. This is because of the American weakness for, and resort to, the catchword or phrase that seems to sum up the issue in a neat and attractive package. Just about every public issue is inevitably so characterized that the individual can grasp the meaning without much, if any, mental effort.

"But, to the thinking person, this trait all too obviously lends itself to gross imposition and deception, since no slogan nor catch phrase can possibly be devised to tell the whole story honestly and completely.

"The enemies of freedom find a happy hunting ground in our public habits of apathy and superficiality."—RALPH T. MOORE, writing in the *Oregon Voter.*

Microwave users

GET "RELIABILITY"

use C&D PlastiCal® or PlastiCell batteries— combined with a C&D AutoReg® Silicon Power Supply*

To be sure of continuous, never-failing power for microwave systems, power them with a combination of a C & D battery and an *AutoReg* Silicon Power Supply.

C & D batteries are available in two types: premium PlastiCal and standard PlastiCell. Both have extra thick *triple insulated* positive plates and come in compact, lightweight, space-saving plastic containers equipped with safety vents.

C & D's *AutoReg* Power Supply matches the C & D batteries designed for communication service. It features a silicon diode rectifier that never requires aging adjustments. Charging rate is dictated by the battery and the combination is virtually maintenance free.

Specify C & D, and choose the standby power package best suited to your equipment.

PlastiCell—37 sizes with 16-year life, lead antimony plates, covering 10 to 1680 A.H.

PlastiCal—27 sizes with 25-year life, lead-calcium plates, covering 10 to 1680 A.H.

AutoReg Silicon Power Supplies—Wide variety of models to cover all 24, 48, and 130 volt applications.

For complete details and specifications write for Bulletins T-532 (PlastiCal) and T-533 (PlastiCell) plus Bulletin AR-108.

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the United States Senate, Senator Cannon declared:

"It is essential that we lay the facts concerning our scientific manpower gap before the public" in such a way as to stimulate and "increase student enthusiasm for careers in science."

He said that the nation must develop new methods for discovering the gifted and creative individual in our schools who is overlooked because of an "overreliance, and sometimes faulty," measurement obtained through IQ testing and academic grades.

In relation to the flight of Lt. Col. John Glenn, Cannon said that "as a priority matter of national policy, we must see that these men are backed up by a scientific community of adequate size and in quality second to none."

The senator pointed out that the National Aeronautics & Space Administration (NASA) needs 13,000 additional engineers and scientists within the next few years; that additional technical manpower was demanded by newly developed space activities, including satellite communications; and that more trained men would be needed for increased activities of the Atomic Energy Commission.

"Just where these people will be found is still unknown," Cannon said. He pointed out that the nation's colleges graduated 52,700 engineers in 1950, and only 37,000 in 1960.

The Nevada senator, a member of the Senate Space Committee, said comparisons between the rate of scientific graduates produced in the USSR and USA were "most disturbing."

He added that tremendous Soviet increases in scientific and engineering graduates, coupled with our own output which he termed static, was "no less than a major threat in the long-run struggle between democracy and totalitarianism. . . . More and more, it is becoming obvious. . . . that science and technology are increasingly going to become the foundation of our national strength."

Cannon said further that if we falter in our mastery of space, failure will be laid directly to the lack of an adequate supply of critically needed scientific and engineering manpower—"and the classroom is the only place where this critical space-age item can be produced."

As steps in the right direction, the senator commended NASA for its program of upgrading junior personnel

by encouraging night courses and on-the-job graduate work.

He also stressed the need to "convince industry and the universities that they must enter into a much more intensified, co-operative partnership to provide half-time graduate education for employes."

Book Review

"FORTY YEARS OF RADIO RESEARCH," by George C. Southworth.

Today radio poises on a temporary frequency frontier around 100,000 megacycles, says Dr. George C. Southworth in his book, "Forty Years of Radio Research."

Yet in 1910, Dr. Southworth says, most radio "experts" dogmatized that electromagnetic propagation beyond a mere one megacycle was impractical if indeed the radio spectrum beyond this point was not useless.

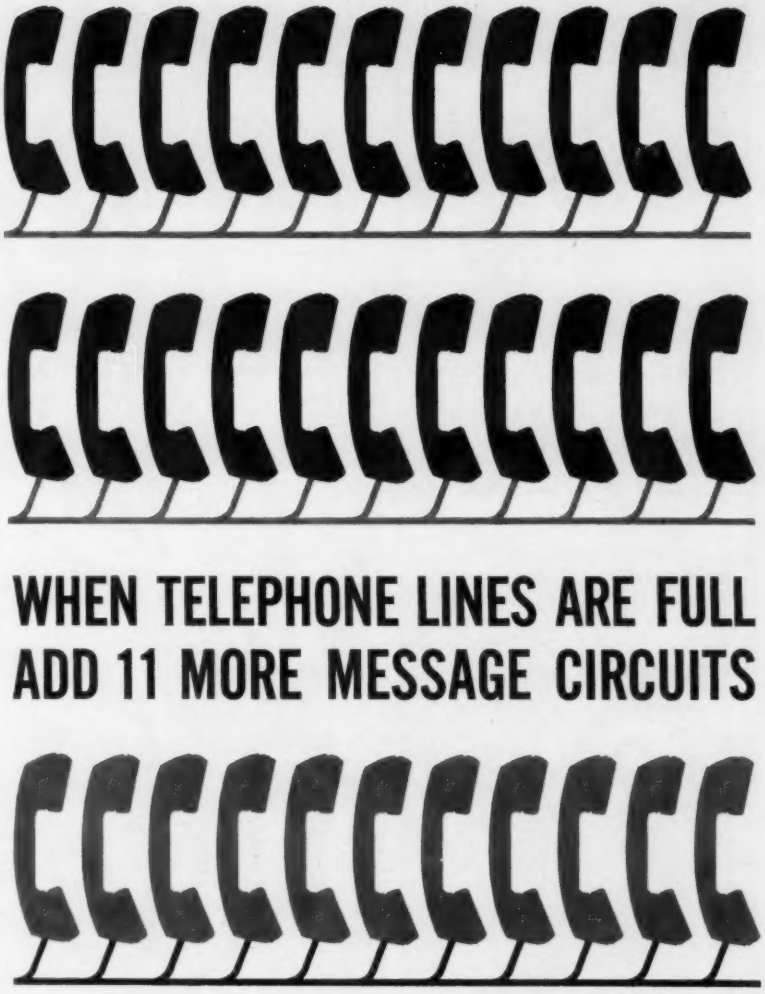
Dr. Southworth, who has been called the "father of the waveguide", received the Morris Liebmann Prize of the Institute of Radio Engineers in 1938, and the Louis Levy Medal of Philadelphia's Franklin Institute in 1946 for his work on microwave radiation from the sun. A definitive fundamental text he wrote on waveguide transmission was published in 1950 and subsequently translated and published in several other languages.

His new book, "Forty Years of Radio Research," discloses the making of a scientist in its early chapters. The dramatic story begins shortly after the turn of the century, with Southworth the boy attending a one-room eight-grade country school. It traces his own growth, and that of radio, to the First World War during which he was an instructor at Yale University teaching the fundamentals of radio, such as they were, to new Army officers.

With the coming of the 20's, public interest in radio boomed. Perhaps at no time in history, Dr. Southworth relates, has any segment of technology so seized the public mind.

About 1931, he and his associates at the American Telephone & Telegraph Co.'s development and research department began investigating the practical possibilities of propagating very short waves through hollow metal pipes. This technique held out the promise of eliminating the tiny coils and condensers needed for higher-frequency wire-circuit radio.

It bore fruit. For out of these waveguide techniques came three well-defined and useful applications: (1) a new medium for propagating electromagnetic wave power from one point to another, (2) a new tuning technique that became effective at frequencies beyond the limit of conventional wire-circuit coils and condensers, and (3) a



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ADD 11 MORE MESSAGE CIRCUITS

WITH A LYNCH LOW-COST
FM CARRIER SYSTEM

The Lynch FM Carrier System, Type B630, will provide you with additional message circuits when your wire lines are full because it operates at higher frequencies than most wire line carriers in use today. You can add message circuits because the B630 will operate above the frequencies of your existing carrier on the same wire line without disturbing existing circuits. Up to 11 channels may be added between 44 and 412 kc.

Message circuits may be added to your cable with the Lynch Cable Carrier, Type B650—on your radio system with the Lynch B640 Radio Carrier.

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Here's a sure SCHAUER power source for the operator's circuit on magneto switchboards

Schauer Type PA-05004 Battery Eliminator delivers constant, hum-free direct current to the operator's circuit. Equipped with relay for automatically transferring power to stand-by dry cells in the event of AC failure. Standard capacity is 4 volts DC at 0.5 amps. Steel case, for wall mounting is 5½"x6¼"x4".

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series of new antennas, some even more directional than searchlights of the 30's.

Dr. Southworth describes all of this work in his new book, and what it later led to at Bell Telephone Laboratories and elsewhere. Out of it he reports, grew the high-definition radar developed secretly during the Second World War, followed by commercial transcontinental microwave radio relaying.

Described in "Forty Years of Radio Research" are visits of the British War Mission to the U. S. shortly before and during World War II, to obtain information on waveguide techniques developed by Dr. Southworth, which could be applied to improving radar pioneered by the English. In return they supplied important basic information on the paralleled development of high-frequency electron tubes, such as the magnetron.

A pre-Second World War visit by a German scientist associated with a large industrial organization in Germany is also related by Southworth. He quotes a portion of a letter he received from the same German scientist many years after the war's end, which sheds light on why German wartime research lagged behind that of the Western Allies.

Included in the book, are many photographs (never before published) of early waveguide transmission lines, waveguide components, directional antennas and receivers, early radars, and related subjects.

Published for the first time anywhere is a story, now 17 years old, of a top-secret radar map which showed clearly geographical outlines, ships moving in and out, even buoys. This early map, of great historical value, was made with one of America's very first high-definition radars, in whose development Dr. George C. Southworth played a leading role.

For prices and other ordering information, contact the publisher, Gordon & Breach, 150 Fifth Ave., New York 11, N. Y.

•

"BASIC MATHEMATICS", Volume III, by Norman H. Crowhurst; size: 6 inches x 9 inches; 152 pages; soft cover; $3.90.

Educated in England, Mr. Crowhurst holds a National Certificate in Electrical Engineering from the I.E.E. He is a contributor to leading international journals, and the author of books including: *Basic Audio, Stereophonic Sound, Fundamentals of UHF* and *Basic Mathematics*. He is a Senior Member of the I.R.E.

This is the third volume of the "pictured-text" course on mathematics, written to make it easier to learn all the mathematics needed for everyday use and on the job. The book presents in easy-to understand form the useful and important highlights of the various branches of mathematics.

The course has utilized the "unity of mathematics" approach recommended by mathematicians and educators. At least one illustration appears on every page to reinforce the idea presented in the text.

The course is designed to take the reader step-by-step in easy stages from simple arithmetic through an integrated study of algebra, geometry, trigonometry, and calculus. In Vol. III, the various branches of mathematics are developed as working methods in mathematics.

The first two volumes of this course were released during 1961. The final volume will be made available this year.

This book can be ordered through TELEPHONY.

Dieters' Warning

"It's not the minutes you spend eating—it's the seconds."—*Industrial Press.*

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TRANSMISSION NOTES

Concluded from page 27

at 1000 or 3000 cycles. The loss figure we were using for our transhybrid calculations was the 1000 cycle value; at 300 cycles we had a poor circuit. When the lower frequencies were attenuated we had a well behaved circuit again.

Transmission work is probably one of the most interesting aspects of telephony. Solving the problem offers a challenge and satisfaction similar to that found in a game like chess. All of the problems are difficult until they are solved. Then you will likely find that it was just a simple little thing that tripped you up.

Plea for Confidence

"Lack of confidence and lack of information sleep in the same bed, locked in the closest kind of embrace. When a man has confidence, he gets along in business, but without confidence, he might just as well not enter business at all. For confidence is the son of vision, and is sired by information."—CORNELIUS VANDERBILT JR.

More Than Money Needed

"The truth is that money is not a substitute for brains, for skillful diplomacy, for sound military strategy. More money does not equal better government. And if Washington thinks money is an answer to complexity at home or abroad, then more money will equal worse government."— *Wall Street Journal.*

Nourish the Spirit!

If I had but two loaves of bread, I would sell one and buy hyacinths, for they would feed my soul.—THE KORAN.

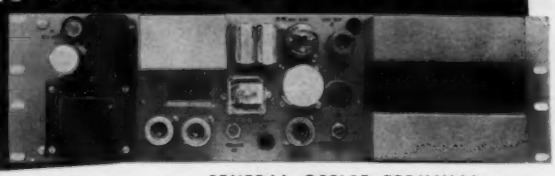
"Sure lucky they always build roads right next to your poles."

You can add 7 of these Profitmakers where there's 1 now

...without additional cable!
...without more open-wire lines!
...without impairing or interfering with existing service!

TYPE 46-A POSTPAY PAYSTATION CARRIER

OFFERS SEVEN CARRIER CHANNELS ON A SINGLE PHYSICAL CIRCUIT — EXISTING OR NEW



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The ideal, low-cost way to provide additional *high-quality* postpay paystation service — where wire facilities are not available — where plant expansion for such facilities must be postponed — where additional seasonal postpay paystations don't warrant expensive plant installation.

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★ *Low Operating Cost* . . . a complete channel uses only 9 tubes of 2 types. We can show you savings figures!

★ *Low Maintenance* . . . Rugged high-quality components with ample safety factor. Tubes at any radio or tv store. No need for spare channels.

★ *100% Recoverable* . . . and easily. You can quickly relocate any station in a more favorable spot.

Write or call us for Bulletin 359-A

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Portable Tool Named Ka-Mo Chicago Distributor

Portable Tool Sales & Service, Inc., Chicago, Ill. has been appointed a distributor for Ka-Mo products in the Chicago trading area, according to an announcement from the Kwik-Mix Co.

Portable Tool will sell and service the complete line of Ka-Mo earthboring and drilling equipment, which includes air, hydraulic, electric, and gasoline-powered boring machines.

Albin Anderson is president of Portable Tool Sales & Service which is located at 4859 W. Chicago Ave.

Galligan, S-C Veteran, Retires After 47 Years

Joseph P. Galligan, former manager of Stromberg-Carlson's West Coast branch retired on Mar. 1 after 47 years with the company.

Previously, Mr. Galligan was a sales representative for Stromberg-Carlson in the Midwest for 25 years. His first telephone experience was with the Home Telephone Co. of Louisville, Ky., his birthplace.

Switchboards selected for the several Louisville offices were Stromberg-Carlson. Mr. Galligan's proficiency as an installer led to his employment by this manufacturer. During the years 1915-1920, he worked as a member of Stromberg-Carlson's installation department, in addition to serving in the Navy during World War I. While Mr. Galligan was West Coast manager, the branch experienced a growth that led to a move from downtown San Francisco to its own large, modern office and warehouse in suburban Burlingame.

J. P. GALLIGAN

The Galligans, on Apr. 1, will move from Burlingame to a new home at 2808 Hacienda Street, San Mateo, Calif.

ITT Signs Agreement With Nippon Electric Co.

International Telephone & Telegraph Corp. reports that it has signed a five-year agreement with the Nippon Electric Co., Tokyo, under which ITT will manufacture and sell Nippon's telecommunications equipment in the United States and Canada.

Distributor for the equipment will be the ITT Kellogg Division, Chicago. Products include microwave, tropospheric scatter and multiplex transmission equipment.

Hanapel Joins Cook Electric In Engineering Capacity

Alfred J. Hanapel has joined the Wirecom division of Cook Electric Co., William D. Holcomb, manager of that division, has announced. Mr. Hanapel's duties will be to implement the engineering of Wirecom in the manufacture of telephone protective and distribution equipment.

Mr. Hanapel was formerly transmission and outside plant engineer in the Chicago area for the Illinois Bell Telephone Co. His experience in the

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EVERY TOOL NECESSARY FOR ADJUSTING, CHECKING AND TROUBLE-SHOOTING RELAYS

18 TOOLS

All 18 tools especially designed for RELAY WORK. Includes Contact Burnisher with extra blades, Spring Tension Gauge, Wrenches, Thickness Gauge Set, Inspection Mirror, etc. All in Vinyl Case.

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A. J. HANAPEL

telephone field has been extensive and diversified, including work as staff supervisor, handling outside plant construction methods and practices, as well as construction personnel practices; as district plant engineer, in charge of all outside plant field engineering; and as construction maintenance and tools engineer.

Prior to joining Illinois Bell, he was with the Lincoln (Neb.) Telephone & Telegraph Co., in the capacity of outside plant engineer and supervisor in charge of outside plant cable splicing and cable maintenance operations.

Tyler Joins Skyworker, Aerial Lift Distributor

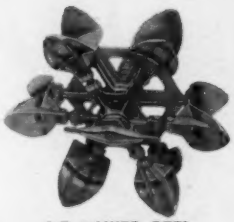
George P. Tyler has joined P. C. Gould Sales Co., of Marion, Conn., New England distributors of the Skyworker hydraulic aerial lift.

Formerly associated with the New England Tree Expert Co., Mr. Tyler received his associates of science de-

"This is my sister and this is my translator."

GENERAL MACHINE PRODUCTS COMPANY, INC.

Old Lincoln Highway at Pa. Turnpike, Trevose, Pa.



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CABLE FEEDER

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COAXIAL CABLE TOOLS
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Special Purpose Tools to Specifications — Catalog on Request

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For Every Application

RURAL DISTRIBUTION

TYPE 177

Specifically designed for low cost telephone service expansion in growing rural and residential areas.

Available in No. 19 and 22 AWG in conformance with REA Specification PE-15 March, 1960.

Color coded for quick identification and easy splicing.

Eliminates use of crossarms by attaching to pole.

Aerial installations possible where open wire lines cannot be used.

Easy to install because of lightweight, self-supporting and long spans.

Ideal for emergencies.

Excellent electrical characteristics from high dielectric strength, low loss, low capacitance polyethylene insulation.

Maximum weather resistance with tough PVC conductor jacket.

THE PLASTIC WIRE & CABLE CORPORATION
JEWETT CITY, CONN.

This New LAWN WIRE PLOW A PROVEN SUCCESS

ESPECIALLLY BUILT for plowing in cable in lawns, golf courses, parks, etc. Weighs only 65 lbs. Cable tube: ⅜" ID. Adjustable plowing depth: 12 to 18 inches. Can be winched, drawn by truck or small tractor.

Has safety shear pin; also a ⅜-inch cable sling that prevents towing eye from flying if shear pin breaks.

Ground disturbance very slight because of down pressure on Coulter knife under skid when being pulled, making a deep, clean cut for plow shear and cable tube to follow in.

Ruggedly built—coulter and shear made of Hi-Tensile Wear-Alloy Steel.

Price: $68.00 F.O.B. Satisfaction guaranteed.

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were made for Your Comfort!

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1719 FIRST STREET SAN FERNANDO, CALIF.

G. P. TYLER

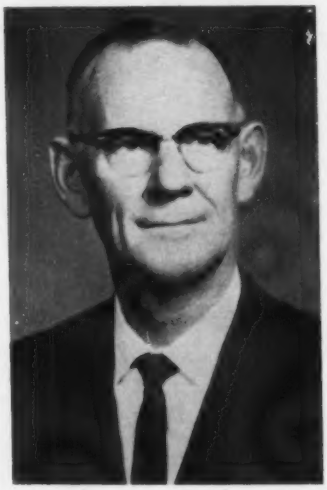
gree from the University of Massachusetts in arboriculture. He also attended Quinnipiac College, Hamden, Conn.

He has worked as a contractor for major Connecticut electric utility companies and for the Philadelphia Electric Co.

The Skyworker aerial lift, formerly manufactured by Emhart Manufacturing Co., is now produced by the Hughes-Keenan Division, U. S. Air Conditioning Corp., Delaware, O.

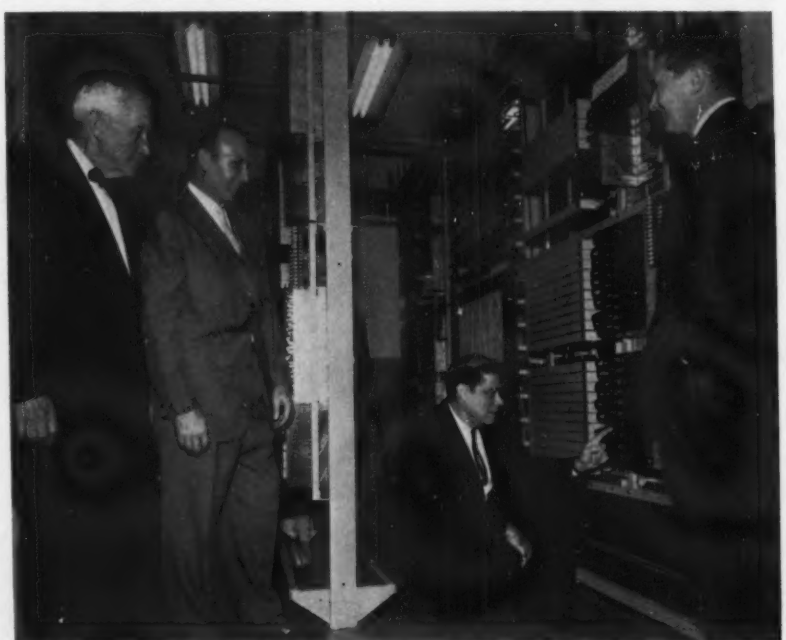
LeGette Named Sales Manager In the West by Motorola

Everett LeGette has been appointed regional sales manager in the Western United States by Motorola Communications & Electronics, Inc.



EVERETT LE GETTE

In this capacity, Mr. LeGette directs the design and sale of FM two-way radio and other communications sys-



During recent cut-over of Millerton exchange of Copake (N.Y.) Telephone Co., J. D. Ackley (left), a 55-year telephone veteran in the management, was a witness. Joining in the event were Joe Ferro of Stromberg-Carlson sales (second from left); Cecil Blase, Copake Telephone's plant superintendent (kneeling); and (at right) J. Ben Ackley, manager, and son of J. D. Ackley. Other Copake exchanges were converted to XY in the initial stages of Copake's modernization program. Company serves about 4,000 subscribers through its four east central New York exchanges.

A Directory for the

Eastern Rowan Telephone Co., Inc.

Printed by

R. R. Donnelley & Sons Company

2223 South Park Way, Chicago 16

NATCO CLAY CONDUIT

Multiple Six-Way

for

PERMANENT PROTECTION OF UNDERGROUND CABLE

Natco Clay Conduit is furnished in both single and multiple duct for the permanent protection of underground telephone, telegraph, signal, power and lighting cables against fire, corrosion, electrolysis, mechanical injury and chemical attack. Write for catalog.

ALSO AVAILABLE IN . . .

SINGLES TWO-WAY THREE-WAY FOUR-WAY NINE-WAY

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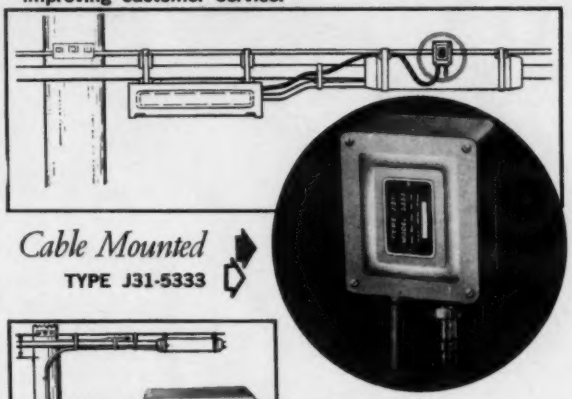
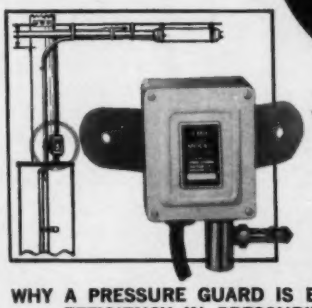
UE® Protection for PRESSURIZED CABLE SYSTEMS

with U.E.'s improved, compact Pressure Guard as the proven aid for reducing cable maintenance costs and improving customer service.



Cable Mounted

TYPE J31-5333



Pole Mounted

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WHY A PRESSURE GUARD IS ESSENTIAL FOR MAXIMUM EFFICIENCY IN PRESSURIZED CABLE SYSTEMS

- The Pressure Guard monitors and protects cable at all times, not just periodically.
- The Pressure Guard ensures routine sheath breaks are detected and localized prior to service disruption.
- The Pressure Guard provides one more value that may be detected at the test desk.
- The Pressure Guard transmits its signals via working subscriber lines rather than requiring special circuits.
- The Pressure Guard reduces cable maintenance costs and improves customer service at very low cost.
- The Pressure Guard's low cost permits liberal usage for maximum protection.

SPECIFICATIONS

TYPE J31-5333

Field Adjustment Range ..... 0 to 10 PSI
Factory Setting ..... 2 ±¼ PSI on falling pressure
Pressure Response ..... 4 ±½ oz.
Proof Pressure ..... 30 PSI
Electric Rating ..... 0.01 amp 100 V DC
Load Resistor ..... Carbon composition 270,000 OHM 1 watt
Drop Wire ..... 6' Type SJO#18 stranded 2.0 conductor
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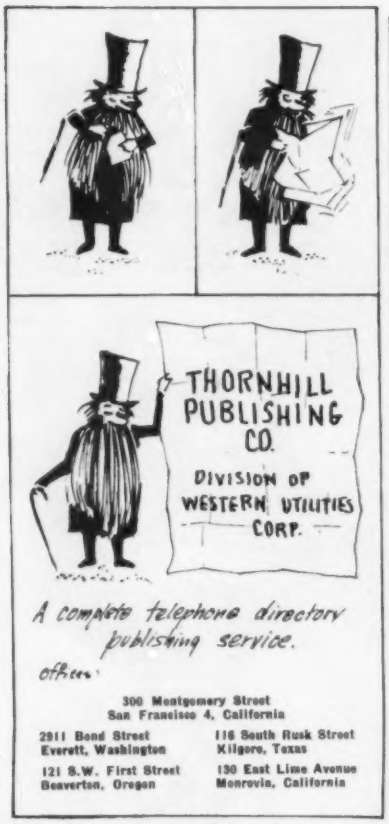

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tems and equipment to industrial, governmental and business organizations throughout the six-state area of Colorado, western Kansas, western Nebraska, New Mexico, southeastern Wyoming and northern Texas. His headquarters are located in Denver.

Mr. LeGette brings to his new position 18 years of experience in radio communications. Previously, he was sales manager for Motorola in southern California. He joined Motorola in 1950 as a radio communications representative, after managing a Motorola service station in San Louis Obispo, Calif. for three years.

He operated a radio common carrier system for three years, and is a charter member of the National Mobile Radio System. He is also a member of the Institute of Radio Engineers.

W. S. HANNIBAL

Hannibal Named to Pacific Sales of Graybar Electric

Warren S. Hannibal has been appointed telephone salesman for Graybar Electric Co.'s central Pacific district it was announced by Charles W. Greer, manager communication sales. Mr. Hannibal is responsible for sales in northern California and northern Nevada.

With Graybar Electric Co. for 14 years, Mr. Hannibal has been a salesman in the San Jose, Calif., area.

He attended the University of Southern California, took additional technical work, and graduated from San Jose State College. He also completed Graybar Electric Co.'s School of Telephone, and more recently, attended a training course on telephone carrier equipment at Lynch Communication Systems.

Clapp Now Vice President, United Electric Controls

George W. Clapp has been promoted to vice president of United Electric Controls Co., S. T. Herr, executive vice president, has announced.

The San Francisco office of the Graybar Electric Co. presented C. C. Kaiser (second from left), Lynch Communication Systems field engineer, with a certificate of appreciation at a special luncheon, for his unusual sales assistance during 1961. Mr. Kaiser's cooperation was considered a deciding factor in gaining first place for the Graybar Central Pacific district in the sale of Lynch equipment throughout the United States. Pictured at the luncheon are, left, Harrison Johnston, Lynch marketing manager; Mr. Kaiser and C. W. Greer, Graybar's San Francisco district sales manager. Among others in attendance were G. L. Call, Graybar's San Francisco district manager and Donald E. Campbell, president of Lynch Communication Systems.

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G. W. CLAPP

Mr. Clapp has been with United Electric since 1951 and was formerly sales manager of the company, a manufacturer of industrial temperature and pressure controls. In his new capacity, Mr. Clapp will be responsible for all field activities, special projects and sales representatives throughout the United States and Canada and abroad.

He is an engineering graduate of the University of Miami and a combat veteran of World War II.

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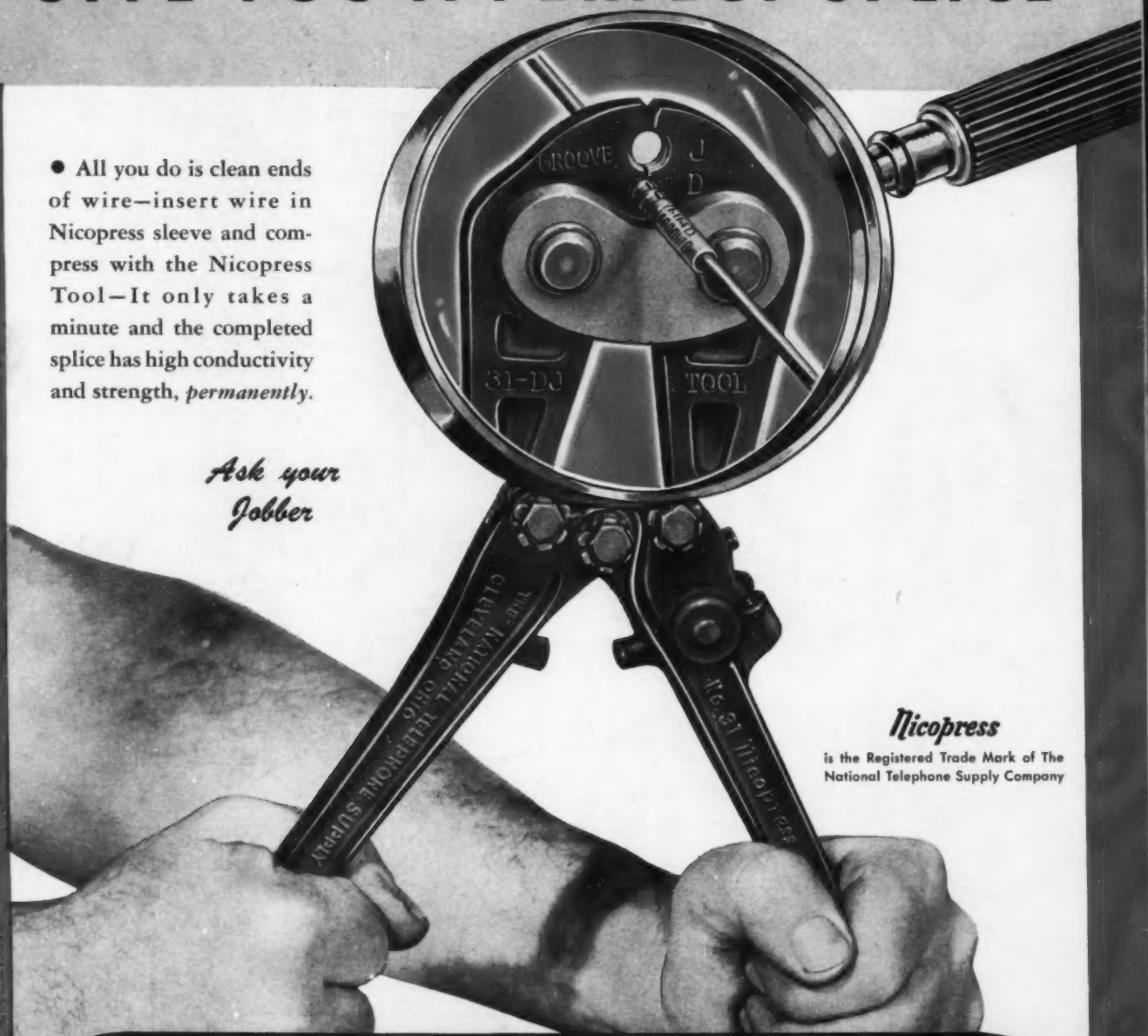

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